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411

-009 thru -010

Power Examination Table

MIDMARK®

Service and Parts Manual

Serial Number Prefixes:
FA, FB

411 -009 thru -010

FOR USE BY MIDMARK TRAINED TECHNICIANS ONLY

SF-1464

Part No. 003-0771-00 Rev. L (1/01/04)

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IMPORTANT INSTRUCTIONS

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this power examination table is maintained with the safety of the patient and staff in mind. To assure that services and repairs are completed safely and correctly, proceed as follows:

(1) Read this entire manual before performing any services or repairs on this table.

(2) Be sure you understand the instructions contained in this manual before attempting to service or repair this table.

Warnings

Throughout this manual are Note, Caution, and Danger paragraphs that call attention to particular procedures. These items are used as follows:

NOTE
A note is used to amplify an operating procedure, practice or condition.

CAUTION
A CAUTION is used for an operating procedure, practice, or condition which, if not correctly followed, could result in equipment damage.

DANGER
A DANGER is used for an operating procedure, practice, or condition which, if not correctly followed, could result in loss of life or serious personal injury.

Warranty Instructions

Refer to the Midmark "Limited Warranty" printed on the back cover of the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the 75L Power Examination Table unsafe for operation.

- In the event of a malfunction, do not attempt to operate the table until necessary repairs have been made.
- Do not attempt to disassemble table, replace malfunctioning or damaged components, or perform adjustments unless you are one of Midmark's authorized service technicians.
- Do not substitute parts of another manufacturer when replacing inoperative or damaged components. Use only Midmark replacement parts.

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SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for 75L Power Examination Table. This manual is intended to be used by Midmark's authorized service technicians.

1.2 How to Use Manual

A. Manual Use When Performing Scheduled Maintenance.

(1) Perform inspections and services listed in Scheduled Maintenance Chart (Refer to para 3.1).

(2) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

B. Manual Use When Table Is Malfunctioning And Cause Is Unknown.

(1) Perform an operational test on table (Refer to para 2.1).

(2) Perform troubleshooting procedures listed in Troubleshooting Guide (Refer to para 2.2).

(3) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

C. Manual Use When Damaged Component Is Known.

(1) Replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

1.3 Description Of 75L Power Examination Table

A. General Description (See Figure 1-1).

The 75L Power Examination Table is an examination table designed specifically for performing general medical examinations and procedures.

The major serviceable components of the table are the headlock limit switch, back actuator limit switch, pan safety limit switch, base down limit switch, base up limit switch, tilt actuator, tilt capacitor, back actuator, back capacitor, foot actuator, foot capacitor, base actuator, base capacitor, PC control board, foot inlet PC board, hand inlet PC board, duplex receptacle, hand control panel, foot control interface board, foot control foot switches, stirrup assembly, headlock assembly, chain assembly, and column assembly.

B. Theory of Operation (See Figures 5-1 and 5-2 for wiring diagrams / electrical schematics)

Electrical Power:

Line voltage (115 VAC for domestic units and 230 VAC for export units) is supplied directly to the table's PC control board. There is a transformer and associated follow-on circuitry on the PC control board which reduces the line voltage to 12 VDC. The 12 VDC provides power to operate the circuitry on the PC control board, foot control, and hand control.

On domestic units, 115 VAC is continuously supplied to the L.H. and R.H. receptacles. Export units do not have receptacles.

Operation Of Tilt, Back, and Foot Actuator Assemblies:

When a function is selected using the hand control, the hand control sends a signal to the PC control board. The signal causes the appropriate relay on the PC control board to energize (i.e., if the TILT UP button is depressed on hand control, the Tilt UP relay on PC control board is energized). Line voltage is continuously supplied to all relays on PC control board. So, when a relay is energized, the line voltage flows thru the relay and is applied across the windings of the actuator motor, causing it to run. When the hand control button is released, the relay de-energizes, removing the line voltage from the windings of the actuator motor and causing it to stop running.

The Tilt, Back, and Foot actuators are ball screw driven. The actuator assemblies contain a pivot point on the end of the ball screw. If an actuator assembly is run to the end of its stroke, the ball screw shaft spins inside the nut, which allows the actuator assembly to run without damaging or advancing the nut.

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SECTION I
GENERAL INFORMATION

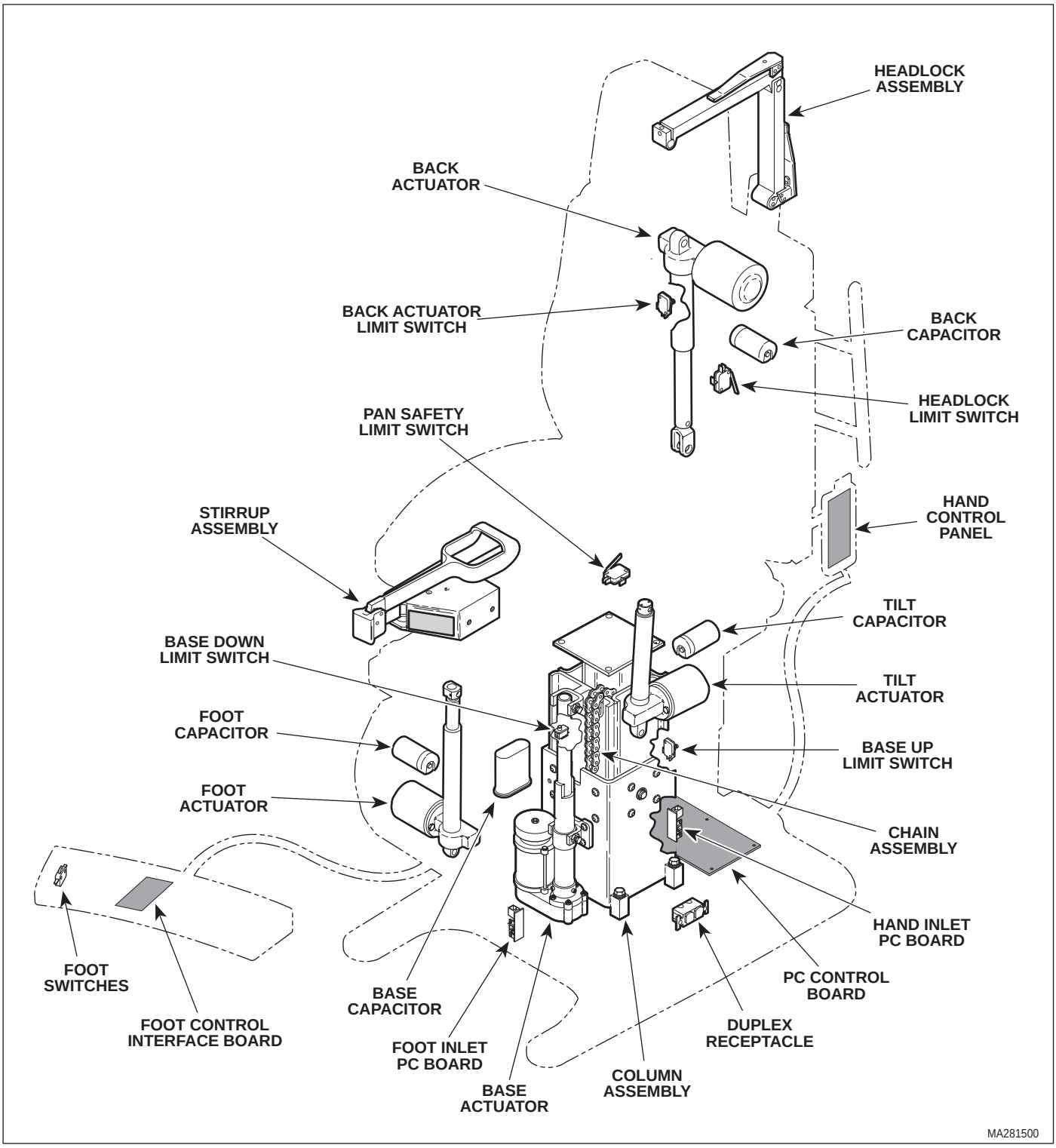

Figure 1-1. Major Components

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The Tilt, Back, and Foot actuators have internal braking mechanisms which disengage when a motor starts running and engage when a motor stops running.

Operation Of Base Actuator Assembly:

When a BASE UP or BASE DOWN function is selected using the hand control, the hand control sends a signal to the PC control board. The signal causes the base up or down relay, and the base brake relay on the PC control board to energize (i.e., if BASE UP button is depressed on hand control, Base Up relay and the base brake relay on PC control board energizes). Line voltage is continuously supplied to the relays on PC control board. So, when the base up or down relay is energized, the line voltage flows thru the relay and is applied across the windings of the actuator motor, causing it to run. At the same time, line voltage flows thru the brake relay and is applied across the solenoid coil of the base brake, causing the brake to disengage. When the hand control button is released, the relays de-energize, removing line voltage from the coils of the actuator motor, causing it to stop and at the same time, removing line voltage from the solenoid coil of the base actuator brake, causing the base brake to engage.

The base actuator is different from the other three actuators; it doesn't freewheel at the end of its stroke limit. This is because the base actuator operates under the heavier loads. To prevent the base actuator from reaching its stroke limits, which could damage the actuator, two limit switches are used; a base down limit switch and a base up limit switch. These limit switches are normally closed (N.C.) switches. When the base actuator reaches the end of the travel (up or down), the appropriate N.C. switch is tripped, opening the switch circuit. The PC control board detects that the switch circuit has been opened and denergizes the motor relay and base brake relay, causing the base actuator motor to stop running and the base brake to engage.

Headlock Crash Protection Circuit:

To prevent the headlock assembly from accidentally being run into an object such as a chair, foot, or floor, two limit switches are used. The headlock limit switch, located inside the mounting bracket of the headlock assembly, is a normally open (N.O.) switch. However, when the headlock assembly is in its normal position, the limit switch is tripped, creating a closed circuit. The PC control board detects that the circuit is closed and allows all functions to operate normally. If the headlock assembly contacts an object, the mounting bracket of the headlock assembly deflects away from the back assembly; this allows the headlock limit switch to untrip. This creates an open circuit which is detected by the PC control board. The PC control board will not allow the TABLE DOWN, BACK DOWN, and TILT UP functions to run while the headlock limit switch circuit is open (switch is untripped).

There is another limit switch called the back actuator limit switch. This limit switch is a N.C. switch which is connected in parallel with the headlock limit switch. If the back actuator limit switch is not tripped, a closed circuit exists which overrides the functionality of the headlock limit switch by bypassing it (allows all functions to run normally even if the headlock limit switch is untripped - an untripped condition exists when headlock mounting bracket is deflected away from back assembly). The back actuator limit switch is tripped when back section is between 0° to 30° above horizontal (in relation to seat section) and untripped when the back section reaches +30°. Above +30°, the headlock assembly cannot contact the floor and is not needed. Therefore, the back actuator limit switch provides a way of bypassing the headlock limit switch and preventing it from becoming a nuisance (when back section is in full up position, headlock assembly can fall forward due to gravity, which will prevent TABLE DOWN, BACK DOWN, and TILT UP functions from running - a nuisance). Above +30° above horizontal (in relation to seat section), the N.C. back actuator limit switch is untripped creating an closed circuit - at this point the headlock limit switch is bypassed. At +30° or below horizontal (in relation to seat section), the N.C. back actuator limit switch is tripped creating an open circuit - at this point the headlock limit switch is not being bypassed.

Pan Safety Limit Switch:

The table has a N.O. pan safety limit switch which is monitored by the PC control board. If the pan assembly is not pushed into its fully stowed position, the pan safety limit switch will not be tripped and there will be an open circuit. If the PC control board detects an open circuit, the foot up relay is disabled, preventing movement of the FOOT UP function. This safety feature prevents the table operator from accidentally colliding the foot section into the treatment pan assembly.

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SECTION I
GENERAL INFORMATION

General Information:

All actuator motors have a thermal overload switch which will activate if the actuator assembly is run continuously. The actuator motor was not designed for continuous operation. The normal cool off period for the thermal overload switches is 10 - 20 minutes.

Each actuator motor has a capacitor which provides start up power and motor run power.

There is a 1/10 amp slow blow fuse providing over-current protection to the input of the PC control board transformer.

There is a 5 amp slow blow fuse to provide over-current protection for each function's relays (i.e, Tilt fuse protects TILT UP and TILT DOWN relays).

1.4 Specifications

Factual data for the 75L Power Examination Table is provided in Table 1-1. Also, see Figure 1-2.

Table 1-1. Specifications

Description	Data
Weight:	
Without Shipping Carton	515 lb (233.6 kg)
With Shipping Carton	550 lb (249.5 kg)
Shipping Carton	58 in. "L" x 42 in. "W" x 30 in. "H" (147.3 cm x 106.7 cm x 76.2 cm)
Dimensions (See Figure 1-2):	
Table Top Length	69.25 in. (175.9 cm)
Table Top Length (headrest extended)	82.75 in. (210.2 cm)
Table Top Width	27 in. (68.6 cm)
Overall Width	27 in. (68.6 cm)
Table Top Height (Adjustable):	22 +0.5/-0.0 in. to 40 +0.5/-0.0 in. (55.9 cm to 101.6 cm)
Table Speeds (@ 60 Hz.):	
Base Up	12 seconds
Back Up	10 seconds
Tilt Up	14 seconds
Foot Up	12 seconds
Weight Capacity (Maximum)	325 lb. (147.4 kg)
Electrical Requirements:	
115 VAC Unit	110 - 120 VAC, 60 HZ, 12 amp, single phase
230 VAC Unit	220 - 240 VAC, 50/60 HZ, 8 amp, single phase
Power Consumption:	
115 VAC Unit	1440 WATTS, 12 amps @ 120 VAC
230 VAC Unit	1920 WATTS, 8 amps @ 240 VAC
Recommended Circuit:	
A separate (dedicated) circuit is recommended for this table. The table *should not* be connected to an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.	

1.5 Parts Replacement Ordering

If a part replacement is required, order the part directly from the factory as follows:

(1) Refer to Figure 1-3 to determine the location of the model number and serial number of the table and record this data.

(2) Refer to the Parts List to determine the item numbers of the parts, part numbers of the parts, descriptions of the parts, and quantities of parts needed and record this data (Refer to para 6.1).

NOTE
Ask the Purchasing Department of the company that owns the table for this information. Otherwise, this information may be obtained from the dealer that sold the table.

(3) Determine the installation date of the table and record this data.

(4) Call Midmark with the recorded information and ask for the Medical Products Technical Services Department. See back cover of this manual for the phone number or use the Fax Order Form (See page 7-2 for Fax Order Form).

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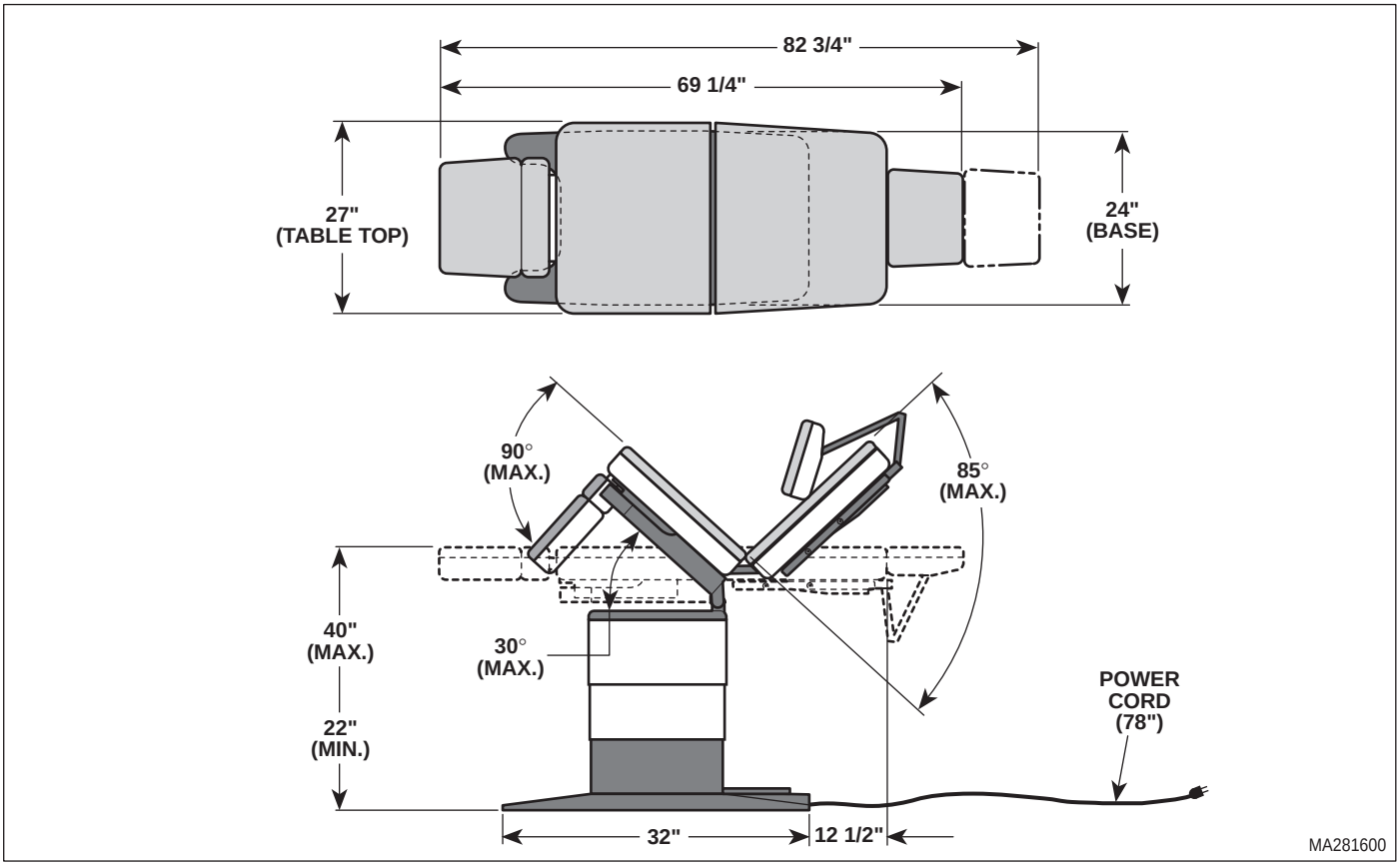

Figure 1-2. Table Dimensions

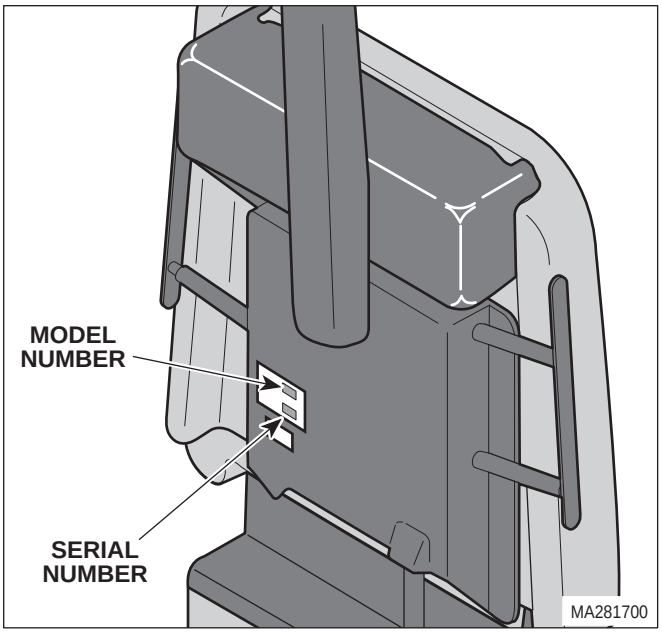

Figure 1-3. Model Number / Serial Number Location

1.6 Special Tools

Table 1-2 lists all of the special tools needed to repair the table, how to obtain the special tools, and the purpose of each special tool.

Table 1-2 is on following page.

SECTION I
GENERAL INFORMATION

Table 1-2. Special Tool List

Description of Special Tool	Manufacturer's Name / Address / Phone	Manufacturer's Part Number	Purpose of Special Tool
Multimeter	Commercially Available	Any Type	Used to perform continuity and voltage checks.
5/16 in. - 18 x 1-1/4 Bolt (Quantity of 2)	Midmark Corporation 60 Vista Drive Versailles, Ohio 45380 (513) 526-3662	505-702308	Used to remove tension from eccentric bearings so they may be adjusted.
Torque Wrench	Commercially Available	Any Type	Used to tighten nuts or screws to specified values.

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SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test

In order to effectively diagnose the malfunction of the table, it may be necessary to perform an operational test as follows:

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
The Operational Test, for the most part, only describes what should happen when the table is operated. If the table does something other than described, a problem has been discovered. Refer to the Troubleshooting Guide to determine the cause of the problem and its correction.

(1) Plug the table into a grounded, non-isolated, correctly polarized outlet, that has the proper voltage output for the table.

NOTE
Pan slide assembly should be pushed in fully for the following step.

(2) Depress TABLE UP, TABLE DOWN, BACK UP, BACK DOWN, TILT UP, TILT DOWN, FOOT UP, and FOOT DOWN buttons on hand control.

(3) Observe. The table top should move in the direction corresponding to the button which is being depressed. No section of the table top should drift on its own after hand control button is released. No actuator assembly should make excessive squealing noises. Movement should be steady and should match the speeds listed below:

Table Speeds (@ 60 Hz.):

Base down to Base up	12 ± 1 seconds
Back down to Back up	10 ± 1 seconds
Tilt down to Tilt up	14 ± 1 seconds
Foot down to Foot up	12 ± 1 seconds

(4) Lower FOOT DOWN function all the way. Pull the pan slide assembly outward until pan safety limit switch is no longer tripped. Depress FOOT UP pedal on foot control.

(5) Observe. The foot section of table top *should not* move when FOOT UP pedal is depressed.

(6) Push pan slide assembly inward until pan safety limit switch is tripped. Depress FOOT UP pedal on foot control.

(7) Observe. The foot section of table top *should* move when FOOT UP pedal is depressed.

(8) Raise BACK UP function all the way up.

(9) Push on headrest assembly (toward foot end of table) until mounting bracket is deflected away from back section. Then depress TABLE DOWN, BACK DOWN, and TILT UP buttons.

(10) Observe. The three functions should operate normally while the headrest assembly is being pushed on.

(11) Lower BACK DOWN function all the way down.

(12) Push on headrest assembly until mounting bracket is deflected away from back section. Then depress TABLE DOWN, BACK DOWN, and TILT UP buttons.

(13) Observe. None of the three functions should operate while the headrest assembly is being pushed on.

(14) Raise TABLE UP function all the way up.

(15) Observe. The base actuator should not hum or make any other type of noise when the table top reaches maximum height. The base up limit switch should be tripped, stopping the base actuator from running.

(16) Lower TABLE DOWN function all the way down.

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SECTION II
TESTING AND TROUBLESHOOTING

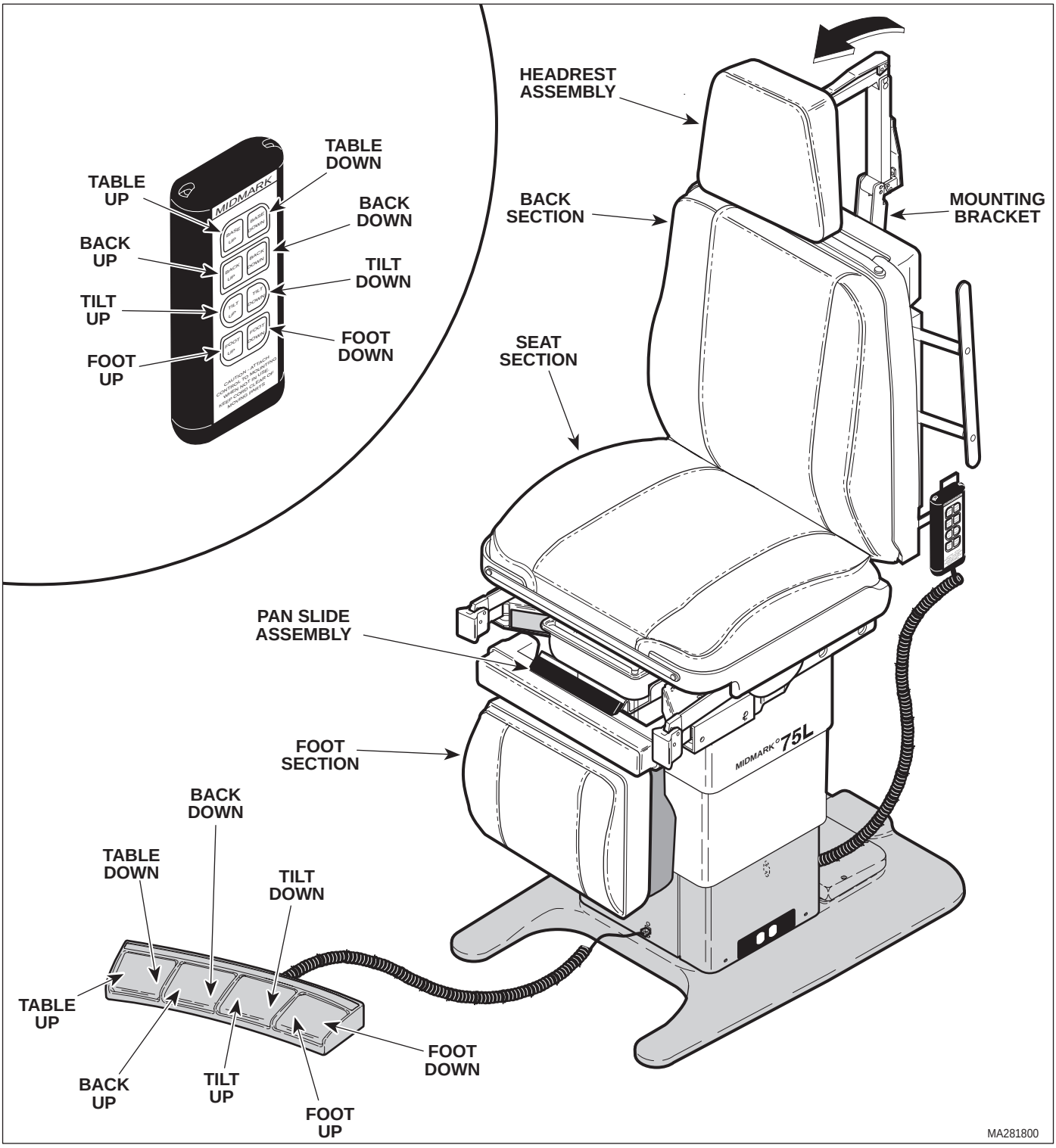

Figure 2-1. Operational Test

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(17) Observe. The actuator assembly should not hum or make any other type of noise when the table top reaches minimum height. The base down limit switch should be tripped, stopping the base actuator from running.

(18) If table has optional foot control, depress TABLE UP, TABLE DOWN, BACK UP, BACK DOWN, TILT UP, TILT DOWN, FOOT UP, and FOOT DOWN pedals on foot control.

(19) Observe. The table top should move in the direction corresponding to the pedal which is being depressed.

2.2 Troubleshooting Procedures

Table 2-1 is a Troubleshooting Guide which is used to determine the cause of the malfunction.

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table will not operate when any of the eight up or down functions are selected.	When a hand control button is depressed, its actuator motor does not run or hum.	Power cord is not plugged into facility wall outlet.	Check to see if power cord is plugged in.	Plug power cord into facility wall outlet.
		Facility circuit breaker providing power to table is tripped.	Check to see if facility circuit breaker is tripped. One way of checking this is to plug a lamp into wall outlet that table was plugged into.	If circuit breaker is tripped, determine what caused circuit breaker to trip, correct the problem, and then reset / replace circuit breaker.
		Wire connections loose.	Check all wiring connections from power cord to terminal block. Perform continuity check on wires. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		1/10 amp primary fuse on PC control board is blown.	Refer to Figure 2-2 for this check. Perform continuity check on fuses.	Replace blown fuse.
		One or both fuses in AC connector receptacle is blown (Export only).	Refer to Figure 5-2 for this check. Perform continuity check on fuses.	Replace blown fuses.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.2.
		Hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		Hand control coil cord has bad connection or there is a break in coil cord.	Replace suspect coil cord with known working coil cord.	Replace coil cord.

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SECTION II
TESTING AND TROUBLESHOOTING

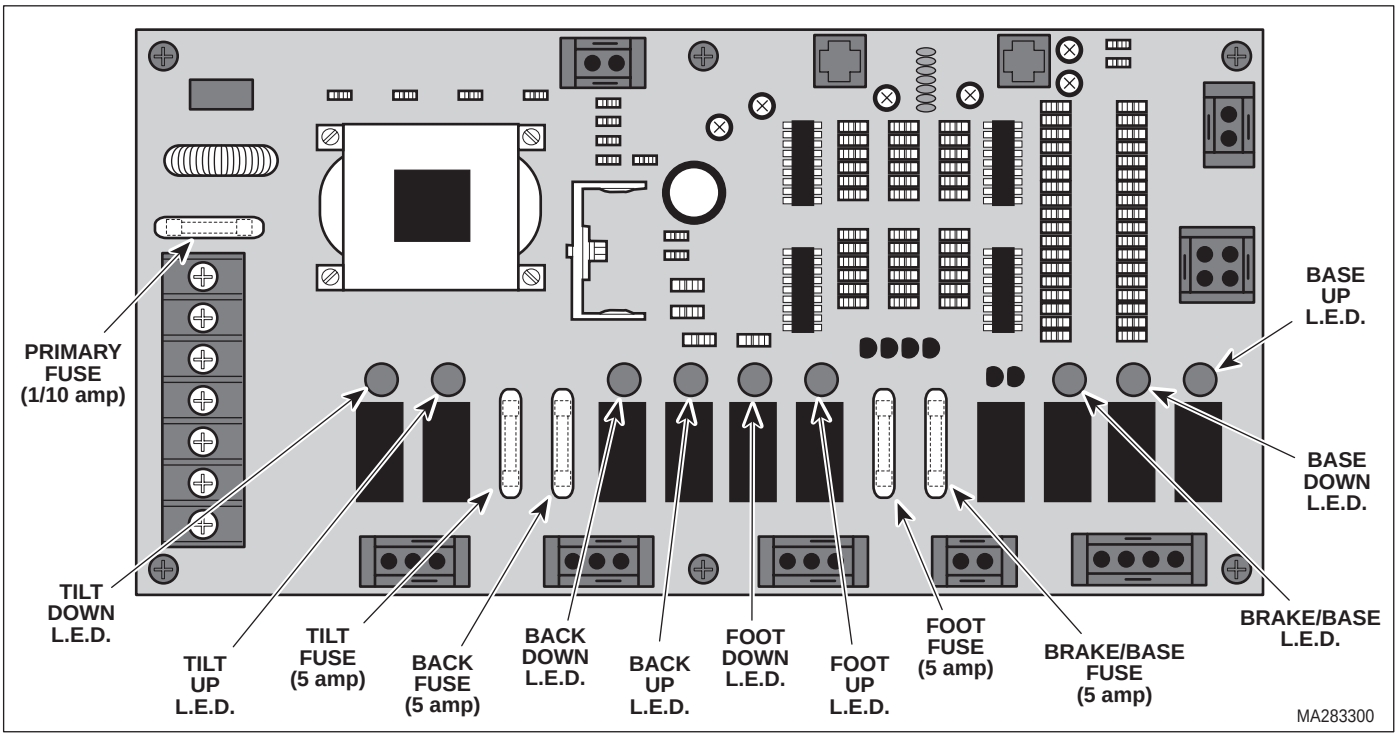

Figure 2-2. Fuse And Troubleshooting L.E.D.'s Location

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
No actions can be initiated from hand control.	Table has power, but no functions can be initiated from hand control.	Coil cord is not plugged into hand control or receptacle on table properly.	Check if coil cord is plugged in properly.	Plug coil cord into hand control or receptacle on table. Clean any dirty connections.
		Hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		Hand inlet PC board is malfunctioning.	Replace suspect hand inlet PC board with known working inlet PC board.	Replace hand inlet PC board. Refer to para 4.20.
		Cord running from hand inlet PC board to PC control board is disconnected or broken.	Check cord to see if it is properly connected. Replace suspect cord with known working cord or perform continuity check on cord.	Replace cord.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.2.
One or more functions cannot be initiated from hand control.	Some functions may be initiated with hand control, but at least one may not.	Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		Fuse for non-operating (suspect) function is blown.	Refer to Figure 2-2 for this check. Perform continuity check on suspect fuse.	Refer to Figure 2-2 for fuse location. Replace blown fuse.
		Relay for non-operating (suspect) function is malfunctioning.	Refer to Figure 2-2 for this check. When hand control button is pressed, observe relay L.E.D.'s on PC control board. The L.E.D. for the function which was selected should illuminate to indicate relay is operating correctly.	If relay L.E.D. does not illuminate properly, replace PC control board. Refer to para 4.2.
No actions can be initiated from foot control.	Table has power, but no functions can be initiated from foot control.	Coil cord is not plugged into foot control or receptacle on table properly.	Check if coil cord is plugged in properly.	Plug coil cord into foot control or receptacle on table. Clean any dirty connections.
		Foot control interface board is malfunctioning.	Replace suspect foot control interface board with known working foot control interface board.	Replace foot control interface board. Refer to para 4.22.
		Foot inlet PC board is malfunctioning.	Replace suspect foot inlet PC board with known working foot inlet PC board.	Replace foot inlet PC board. Refer to para 4.20.
		Cord running from foot inlet PC board to PC control board is disconnected or broken.	Check cord to see if it is properly connected. Replace suspect cord with known working cord or perform continuity check on cord.	Replace cord.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.2.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
One or more functions cannot be initiated from foot control.	Some functions may be initiated with foot control, but at least one may not.	A footswitch for a function is malfunctioning.	Perform a continuity check on footswitch.	Replace footswitch. Refer to para 4.23.
		Foot control interface board is malfunctioning.	Replace suspect foot control interface board with known working foot control interface board.	Replace foot control interface board. Refer to para 4.22.
		Relay for non-operating (suspect) function is malfunctioning.	Refer to Figure 2-2 for this check. When a footswitch is depressed, observe relay L.E.D.'s on PC control board. The L.E.D. representing the function which was selected should illuminate to indicate relay is operating correctly.	If relay L.E.D. does not illuminate properly, replace PC control board. Refer to para 4.2.
BACK UP and BACK DOWN functions do not work. All other functions work.	When BACK UP and BACK DOWN buttons are pressed, table will not move (all other functions work).	Back capacitor is weak or blown.	Replace suspect back capacitor with known working back capacitor.	Replace back capacitor. Refer to para 4.xx.
		Thermal overload switch in back actuator motor is activated.	–	Wait 10 to 20 minutes to allow back actuator motor to cool.
		5 amp BACK fuse for BACK UP and BACK DOWN functions is blown.	Refer to Figure 2-2 for this check. Perform a continuity check on 5 amp BACK fuse.	Replace blown fuse.
		Back actuator assembly is malfunctioning.	Replace suspect back actuator assembly with known working back actuator assembly.	Replace actuator motor or back actuator assembly. Refer to para 4.14 or 4.5.
		Wire connections loose.	Check all wiring connections to back actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning	Refer to Figure 2-2 for this check. Press BACK UP and then BACK DOWN button while observing the PC control board. The BACK UP L.E.D. should illuminate when the BACK UP button is pressed and the BACK DOWN L.E.D. should illuminate when the BACK DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TILT UP and TILT DOWN functions do not work. All other functions work.	When TILT UP and TILT DOWN buttons are pressed, the table will not move (all other functions work).	Tilt capacitor is weak or blown.	Replace suspect tilt capacitor with known working tilt capacitor.	Replace tilt capacitor. Refer to para 4.4.
		Thermal overload switch in tilt actuator is activated.	–	Wait 10 to 20 minutes to allow tilt actuator motor to cool.
		5 amp TILT fuse for TILT UP and TILT DOWN functions is blown.	Refer to Figure 2-2 for this check. Perform continuity check on 5 amp TILT fuse.	Replace blown fuse.
		Tilt actuator assembly is malfunctioning	Replace suspect tilt actuator assembly with known working tilt actuator assembly.	Replace actuator motor or tilt actuator assembly. Refer to para 4.14 or 4.3.
		Wire connections loose.	Check all wiring connections to tilt actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press TILT UP and then TILT DOWN button while observing the PC control board. The TILT UP L.E.D. should illuminate when the TILT UP button is pressed and the TILT DOWN L.E.D. should illuminate when the TILT DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.
TABLE UP and TABLE DOWN functions do not work. All other functions work.	When TABLE UP and TABLE DOWN buttons are pressed, the table will not move (all other functions work).	Base capacitor is weak or blown.	Replace suspect base capacitor with known working base capacitor.	Replace base capacitor. Refer to para 4.12.
		Thermal overload switch in base actuator motor is activated.	–	Wait 10 to 20 minutes to allow base actuator motor to cool.
		5 amp BRAKE / BASE fuse for TABLE UP, TABLE DOWN, and base brake functions is blown.	Refer to Figure 2-2 for this check. Perform continuity check on 5 amp BRAKE / BASE fuse.	Replace blown fuse. See Figure 2-2 for fuse location.
		Base actuator assembly is malfunctioning.	Replace suspect base actuator assembly with known working base actuator assembly.	Replace actuator motor or base actuator assembly. Refer to para 4.14 or 4.11.
		Wire connections loose.	Check all wiring connections to base actuator assembly and base brake solenoid.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TABLE UP and TABLE DOWN functions do not work. All other functions work - Continued.	When TABLE UP and TABLE DOWN buttons are pressed, the table will not move (all other functions work) - Continued.	PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press TABLE UP and then TABLE DOWN button while observing the PC control board. The TABLE UP L.E.D. and BRAKE/BASE L.E.D. should illuminate when the TABLE UP button is pressed and the TABLE DOWN L.E.D. and the BRAKE/BASE L.E.D. should illuminate when the TABLE DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.
		Brake on base actuator is malfunctioning.	–	Replace base actuator. Refer to para 4.11.
FOOT UP and FOOT DOWN functions do not work. All other functions work.	When FOOT UP and FOOT DOWN buttons are pressed, the table will not move (all other functions work).	Foot capacitor is weak or blown.	Replace suspect foot capacitor with known working foot capacitor.	Replace foot capacitor. Refer to para 4.10.
		Thermal overload switch in foot actuator is activated.	–	Wait 10 to 20 minutes to allow foot actuator motor to cool.
		5 amp FOOT fuse for FOOT Upand FOOT DOWN functions is blown.	Refer to Figure 2-2 for this check. Perform continuity check on 5 amp FOOT FUSE.	Replace blown fuse.
		Foot actuator assembly is malfunctioning.	Replace suspect foot actuator assembly with known working foot actuator assembly.	Replace actuator motor or foot actuator assembly. Refer to para 4.14 or 4.9.
		Wire connections loose.	Check all wiring connections to foot actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Refer to Figure 2-2 for this check. Press FOOT UP and then FOOT DOWN button while observing the PC control board. The FOOT UP L.E.D. should illuminate when the FOOT UP button is pressed and the FOOT DOWN L.E.D. should illuminate when the FOOT DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
BACK UP function works, but BACK DOWN function does not or BACK DOWN function works, but BACK UP function does not. All other functions work.	One function operates properly, but the other does not.	Wire connections loose.	Check all wiring connections to back actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Back actuator assembly is malfunctioning.	Replace suspect back actuator assembly with known working back actuator assembly.	Replace actuator motor or back actuator assembly. Refer to para 4.14 or 4.5.
		PC control board is malfunctioning (relay for up or down function is malfunctioning).	Refer to Figure 2-2 for this check. Press BACK UP and then BACK DOWN button while observing the PC control board. The BACK UP L.E.D. should illuminate when the BACK UP button is pressed and the BACK DOWN L.E.D. should illuminate when the BACK DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		BACK UP or BACK DOWN footswitch is malfunctioning.	Perform a continuity check on suspect foot switch.	Replace footswitch. Refer to para 4.23.
TILT UP function works, but TILT DOWN function does not or TILT DOWN function works, but TILT UP function does not. All other functions work.	One function operates properly, but the other does not.	Wire connections loose.	Check all wiring connections to tilt actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Tilt actuator assembly is malfunctioning.	Replace suspect tilt actuator assembly with known working tilt actuator assembly.	Replace actuator motor or tilt actuator assembly. Refer to para 4.14 or 4.3.
		PC control board is malfunctioning (relay for up or down function is malfunctioning.	Refer to Figure 2-2 for this check. Press TILT UP and then TILT DOWN button while observing the PC control board. The TILT UP L.E.D. should illuminate when the TILT UP button is pressed and the TILT DOWN L.E.D. should illuminate when the TILT DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board, Refer to para 4.2.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TILT UP function works, but TILT DOWN function does not or TILT DOWN function works, but TILT UP function does not. All other functions work - Continued.	One function operates properly, but the other does not - Continued.	Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		TILT UP or TILT DOWN footswitch is malfunctioning.	Perform a continuity check on suspect footswitch.	Replace footswitch. Refer to para 4.23.
TABLE UP function works, but TABLE DOWN function does not or TABLE DOWN function works, but TABLE UP function does not. All other functions work.	One function operates properly, but the other does not.	Wire connections loose.	Check all wiring connections to base actuator.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Either base down limit switch or base up limit switch is malfunctioning.	Perform continuity check on N.C limit switches. (Limit switch tripped = open).	Replace base up limit switch (Refer to para 4.16 or base down limit switch (Refer to para 4.15).
		Base actuator assembly is malfunctioning.	Replace suspect base actuator assembly with known working base actuator assembly.	Replace actuator motor or base actuator assembly. Refer to para 4.14 or 4.11.
		PC control board is malfunctioning (relay for up or down function is malfunctioning).	Refer to Figure 2-2 for this check. Press TABLE UP and then TABLE DOWN button while observing the PC control board. The TABLE UP L.E.D. should illuminate when the TABLE UP button is pressed and the TABLE DOWN L.E.D. should illuminate when the TABLE DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		TABLE UP or TABLE DOWN footswitch is malfunctioning.	Perform a continuity check on suspect footswitch.	Replace footswitch. Refer to para 4.23.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
FOOT UP function works, but FOOT DOWN function does not or FOOT DOWN function works, but FOOT UP function does not. All other functions work.	One function operates properly, but the other does not.	Wire connections loose.	Check all wiring connections to foot actuator assembly.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Foot actuator assembly is malfunctioning.	Replace suspect foot actuator assembly with known working foot actuator assembly.	Replace actuator motor or foot actuator assembly. Refer to para 4.14 or 4.9.
		PC control board is malfunctioning (relay for up or down function is malfunctioning).	Refer to Figure 2-2 for this check. Press FOOT UP and then FOOT DOWN button while observing the PC control board. The FOOT UP L.E.D. should illuminate when the FOOT UP button is pressed and the FOOT DOWN L.E.D. should illuminate when the FOOT DOWN button is pressed. If not, the PC control board is malfunctioning.	Replace PC control board. Refer to para 4.2.
		Hand control panel of hand control is malfunctioning (switch membrane is malfunctioning).	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.21.
		FOOT UP or FOOT DOWN footswitch is malfunctioning.	Perform a continuity check on suspect footswitch.	Replace footswitch. Refer to para 4.23.
	FOOT UP function will not work. FOOT DOWN function works.	Treatment pan assembly is not pushed in all the way.	Check that treatment pan assembly is pushed in all the way.	Push treatment pan assembly in all the way.
		Pan safety switch is out of adjustment.	Check to see if pan safety limit switch is being tripped by treatment pan assembly.	Adjust pan safety limit switch so it is tripped when treatment pan assembly is pushed in all the way. Refer to para 4.17.
		Pan safety limit switch is malfunctioning.	Perform continuity check on pan safety limit switch (switch tripped = closed).	Replace pan safety limit switch. Refer to para 4.17.
TABLE DOWN, BACK DOWN, and TILT UP functions do not work. All other functions work.	Only the TABLE DOWN, BACK DOWN, and TILT UP functions do not work. All other functions work.	Headlock limit switch is out of adjustment.	Check if headlock limit switch is being tripped when headlock mounting bracket is in normal position (normal position is: not deflected from back section). Limit switch should be tripped.	If headlock limit switch is not being tripped, adjust. Refer to para 4.8.
		Headlock limit switch is malfunctioning.	Perform continuity check on N.O. limit switch (tripped = closed).	Replace headlock limit switch. Refer to para 4.8.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TABLE DOWN, BACK DOWN, and TILT UP functions still move even though headlock limit switch is no longer tripped (headlock mounting bracket has been deflected away from back section allowing headlock limit switch to untrip).	Even though headlock limit switch is no longer tripped, TABLE DOWN, BACK DOWN, and TILT UP functions still move.	Back actuator limit switch is out of adjustment.	Check if back actuator limit switch is being tripped, when BACK function is lowered below +30 degrees.	If back actuator limit switch is not being tripped when BACK function is lowered below +30 degrees, adjust limit switch. Refer to para 4.7.
The Base, Tilt, or Foot function drifts by itself.	Function operates properly otherwise.	Motor actuator brake is malfunctioning.	Replace suspect actuator brake components with new components.	Replace actuator brake components. Refer to para 4.14.
Base function drifts by itself.	Base function operates properly otherwise.	Base brake is malfunctioning.	Replace suspect base actuator with known working base actuator.	Replace base / brake actuator. Refer to para 4.11.
Table moves fine for light patient, but will not move or moves slowly for very heavy patient.	Heavy patients cause table to malfunction.	Low voltage is being supplied to table.	Check voltage at wall receptacle - should be 115 +/- 5 VAC for domestic units and 230 +/- 10 VAC for export units.	Correct low voltage situation at wall receptacle.
		Table overloaded with too heavy of a patient.	Maximum weight capacity of table is 325 lbs (147.4 kg).	Inform table operator of weight limitation.
		Capacitor for suspect function is weak.	Replace suspect capacitor with known working capacitor.	Replace capacitor.
Whirling or squeaking noise is heard when an actuator assembly is being run.	Noisy actuator.	Foreign matter on ball screw threads and / or lack of lubricant.	Check for foreign matter on ball screw threads. Check for lack of lubricant on ball screw threads.	Clean all foreign matter off of ball screw threads. Coat ball screw threads with STP treatment oil or equivalent. If actuator assembly is still noisy, replace it.

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SECTION III
SCHEDULED MAINTENANCE

3.1 Scheduled Maintenance

Table 3-1 is a Scheduled Maintenance Chart which lists the inspections and services that should be performed periodically on the table. These inspections and services should be performed as often as indicated in the chart.

Table 3-1. Scheduled Maintenance Chart

Interval	Inspection or Service	What to Do
Semi-annually	Obvious damage	Visually check condition of table for obvious damage such as: cracks in components, missing components, dents in components, or any other visible damage which would cause table to be unsafe to operate or would compromise its performance. Repair table as necessary.
	Fasteners/hardware	Check table for missing or loose fasteners/hardware. Replace any missing hardware and tighten any loose hardware as necessary.
	Warning and instructional decals	Check for missing or illegible decals. Replace decals as necessary.
	Pivot points / moving parts / accessories	Lubricate all exposed pivot points, moving parts, and accessories with silicone based lubricant.
	Hand control	Check that hand control works correctly. Make sure all switch membranes work correctly. If necessary, replace hand control panel. Refer to para 4.21.
	Foot control (optional)	Check that foot control works correctly. Make sure all footswitches operate properly. Replace any malfunctioning footswitches. Refer to para 4.23.
	Ball screws of actuator assemblies	Extend each actuator assembly and wipe ball screw threads down with a rag to remove foreign matter. Coat as much of the ball screw threads as possible with STP treatment oil or equivalent. Run each actuator assembly to both ends of its travel a couple of times to spread the oil evenly over all of the ball screw threads and then remove excess oil. If oil does not correct a squealing actuator assembly, replace actuator assembly.
	Drifting of actuator assemblies	Check each actuator assembly for drift. Replace actuator assembly brake components as necessary. Refer to para 4.14.
	Foot extension	Check that foot extension can be easily removed. Make sure foot section is latched securely in place when installed.
	Stirrup assemblies	Check that stirrup assemblies lock into one of three positions. Check for wear. Replace worn components as necessary. Refer to para 4.26.
	Pan safety limit switch	Check that pan safety limit switch is tripped when pan assembly is in fully stowed position. Adjust or replace pan safety limit switch if necessary. Refer to para 4.17.
	Excessive play in column assembly	Check that column assembly does not have excessive side to side play. If necessary adjust eccentric bearings or tighten chain. Refer to para 4.19 or 4.18.
	Head rest	Check that head rest is adjusted properly and will not drift downward on its own under 45 lbs (20.4 kg) of static weight. If necessary, adjust head rest. Refer to para 4.24.
	Electrical receptacles (Domestic units only)	Check that the electrical receptacles are functioning properly. Replace receptacles as necessary.
	Upholstery	Check all upholstery for rips, tears, or excessive wear. Replace cushions as necessary.
	Accessories	Check that all accessories have all of their components and that they function properly. If necessary, repair or replace the accessory.
	Operational Test	Perform an Operational Test to determine if the table is operating within its specifications (Refer to para 2.1). Replace or adjust any malfunctioning components.

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SECTION IV
MAINTENANCE / SERVICE INSTRUCTIONS

4.1 Introduction

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
Perform an operational test on the table after the repair is completed to confirm the repair was properly made and that *all* malfunctions were repaired.

The following paragraphs contain removal, installation, repair, and adjustment procedures for the table.

4.2 PC Control Board Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove four screws (1, Figure 4-1) and PC board cover (2) from base casting (3).

(3) Tag and disconnect eight wire harnesses (4) from PC control board (5).

(4) Tag and disconnect two modular cords (6) from PC control board (5).

(5) Loosen five terminal screws; then tag and disconnect seven wires (7) from terminals of PC control board (5).

(6) Remove six screws (8) and PC control board (5) from base casting (3).

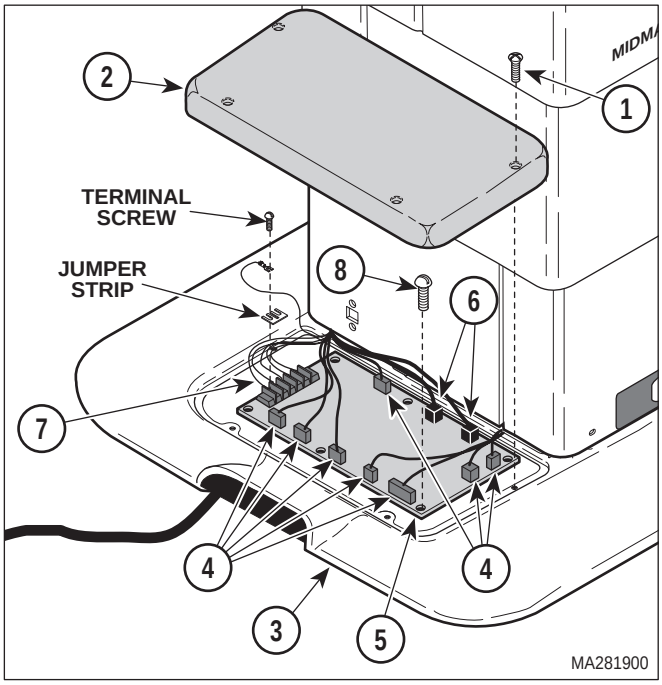

Figure 4-1. PC Control Board Removal / Installation

B. Installation

(1) Install PC control board (5) on base casting (3) and secure with six screws (8).

(2) Connect seven wires (7) to terminals of PC control board (5) and secure by tightening five terminal screws. Make sure jumper strips are installed.

(3) Connect two modular cords (6) to PC control board (5).

(4) Connect eight wire harnesses (4) to PC control board (5).

(5) Install PC board cover (2) on base casting (3) and secure with four screws (1).

(6) Plug table power cord into wall outlet.

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SECTION IV
MAINTENANCE / SERVICE

4.3 Tilt Actuator Removal / Installation

A. Removal

(1) Raise BASE UP function all the way up.

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(2) Unplug table power cord from wall outlet.

(3) Remove four screws (1, Figure 4-2) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

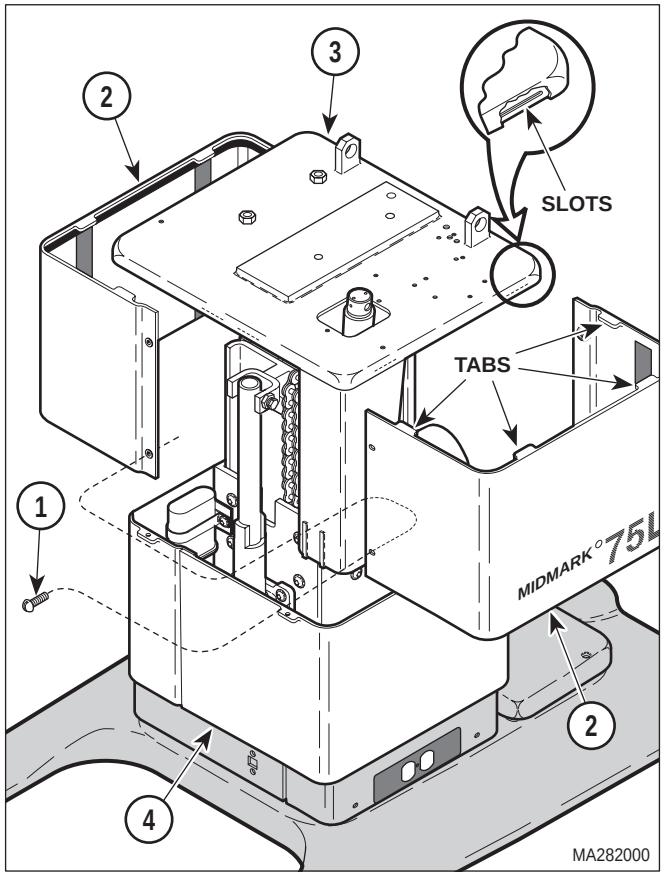

Figure 4-2. Tilt Actuator Access

(4) Lower middle outer shroud assembly (4) down out of way.

(5) Cut two cable ties securing actuator cable to shaft of tilt actuator assembly (1, Figure 4-3).

(6) Remove two screws (2) and connection cover (3) from column adapter weldment (4).

(7) Cut cable tie securing wire harnesses to capacitor mounting bracket (5).

(8) Disconnect actuator wire (6) from wire (7).

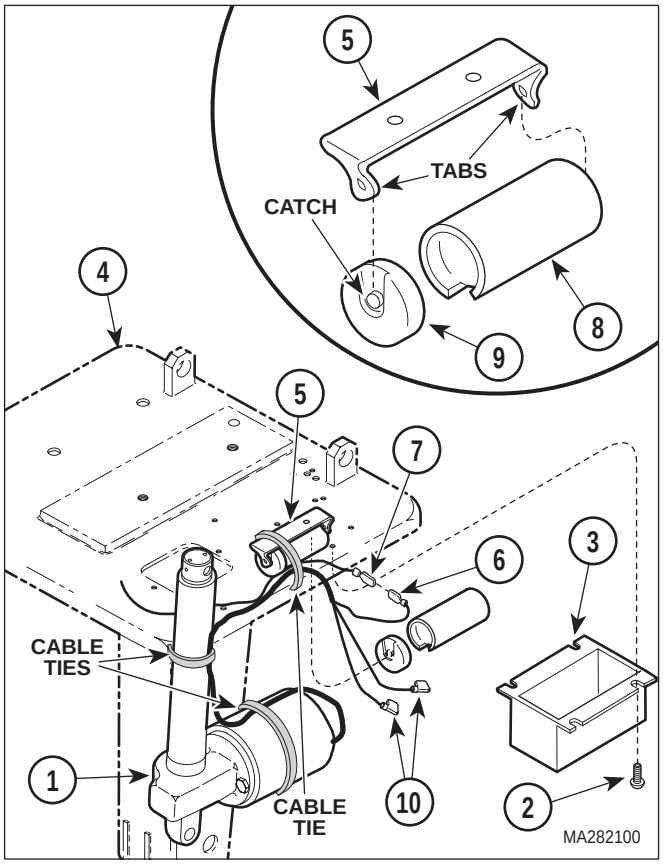

Figure 4-3. Wires Disconnection / Connection

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NOTE
Steps 9 thru 12 describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(9) Using screwdriver, pry tab of capacitor mounting bracket (5) outward; then remove tilt capacitor (8) from capacitor mounting bracket.

(10) Remove cap (9) from tilt capacitor (8).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(11) Discharge tilt capacitor (8).

(12) Tag and disconnect two wires (10) from terminals of tilt capacitor (8).

DANGER
Support foot end of table top while removing clevis pin to prevent foot end of table top from falling and striking technician. Failure to comply with these instructions could result in serious personal injury.

(13) Remove two e-rings (1, Figure 4-4) and clevis pin (2) securing base of tilt actuator (3) to column adapter weldment (4).

(14) Remove screw (5), two screws (6), lockwashers (7), and L.H. stirrup housing (8) from seat weldment (9).

(15) Raise seat weldment (9) up far enough to get access to pivot pin (11). Block seat weldment up in this position.

(16) Remove two e-rings (10) from pivot pin (11).

(17) Using a hammer and punch, drive pivot pin (11) out of seat weldment (9) and remove tilt actuator (3) from table.

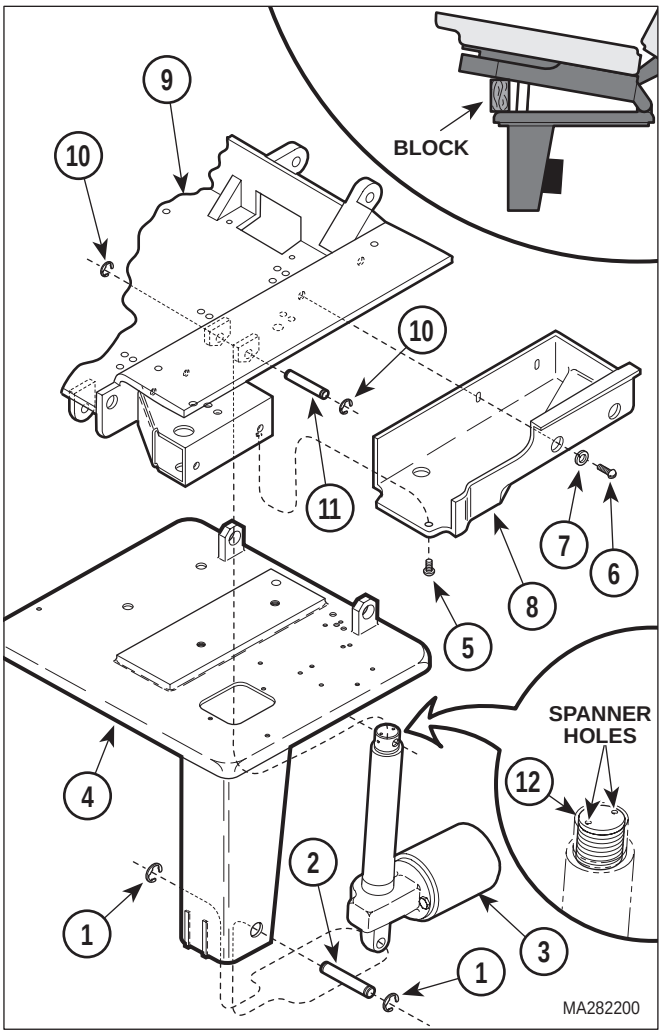

Figure 4-4. Tilt Actuator Removal / Installation

B. Installation

(1) Install tilt actuator (3, Figure 4-4) on column adapter weldment (4) and secure with clevis pin (2) and two e-rings (1).

NOTE
Steps 2 thru 4 describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(2) Connect two wires (10, Figure 4-3) to terminals of tilt capacitor (8).

(3) Install cap (9) on tilt capacitor (8).

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(4) Position bottom of tilt capacitor (8) on capacitor mounting bracket (5) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the capacitor mounting bracket down over the catch of the cap (9). Make sure tilt capacitor is held firmly in place.

(5) Connect actuator wire (6) to wire (7).

(6) Secure bundle of wire harnesses to capacitor mounting bracket (5) with a cable tie.

(7) Install connection cover (3) on column adapter weldment (4) and secure with two screws (2).

(8) Secure actuator cable to tilt actuator (1) with two cable ties.

(9) Using spanner holes, unscrew adjustable clevis (12, Figure 4-4) until it is even with top of actuator rod.

(10) Plug table power cord into wall outlet.

(11) Run TILT UP function to extend rod of tilt actuator (3) 3 to 4 in. (7.6 to 10.2 cm).

(12) Remove support block; then temporarily connect tilt actuator (3) to seat weldment (9) with clevis pin (11).

CAUTION
If tilt actuator does not free wheel at end of stroke, seat weldment is hitting column adapter weldment. Do not allow this condition to exist: premature failure of tilt actuator will result.

(13) Lower TILT DOWN function all the way down (until tilt actuator can be heard free wheeling).

(14) Observe. Seat weldment (9) should be parallel with top of column weldment adapter (4). If seat weldment *is* parallel with top of column weldment adapter, go to step 19. If seat weldment *is not* parallel with top of column weldment adapter, go to step 15.

(15) Extend TILT UP function 3 to 4 in. (7.6 to 10.2 cm).

(16) Remove clevis pin (11) and block seat weldment (9) in this position.

(17) Using spanner holes, screw adjustable clevis (12) in or out as determined necessary in step 14.

(18) Repeat steps 12 thru 17 until seat weldment (9) is parallel with top of column adapter weldment (4) when tilt actuator (3) is free wheeling at the end of its down stroke.

(19) Secure clevis pin (11) in place with two e-rings (10).

(20) Install L.H. stirrup housing (8) on seat weldment (9) and secure with two lockwashers (7), screws (6), and screw (5).

(21) Install tabs of R.H. and L.H. outer shrouds (2, Figure 4-2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (4) is captured by R.H. and L.H. outer shrouds (2).

(22) Plug table power cord into wall outlet.

4.4 Tilt Capacitor Removal / Installation

A. Removal

NOTE
Steps 8 thru 10 of removal and steps 1 thru 3 of installation describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(1) Raise BASE UP function all the way up.

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(2) Unplug table power cord from wall outlet.

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(3) Remove four screws (1, Figure 4-5) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(4) Lower middle outer shroud assembly (4) down out of way.

(5) Remove two screws (5) and connection cover (6) from column adapter weldment (3).

(6) Cut cable tie securing wire harnesses to capacitor mounting bracket (7).

(7) Using screwdriver, pry tab of capacitor mounting bracket (7) outward; then remove tilt capacitor (8) from capacitor mounting bracket.

(8) Remove cap (9) from tilt capacitor (8).

DANGER

A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(9) Discharge tilt capacitor (8).

(10) Tag and disconnect four wires (10) from terminals of tilt capacitor (8); then remove tilt capacitor.

B. Installation

(1) Connect four wires (10) to terminals of tilt capacitor (8).

(2) Install cap (9) on tilt capacitor (8).

(3) Position bottom of tilt capacitor (8) on capacitor mounting bracket (7) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the capacitor mounting bracket down over the catch of cap (9). Make sure tilt capacitor is held firmly in place.

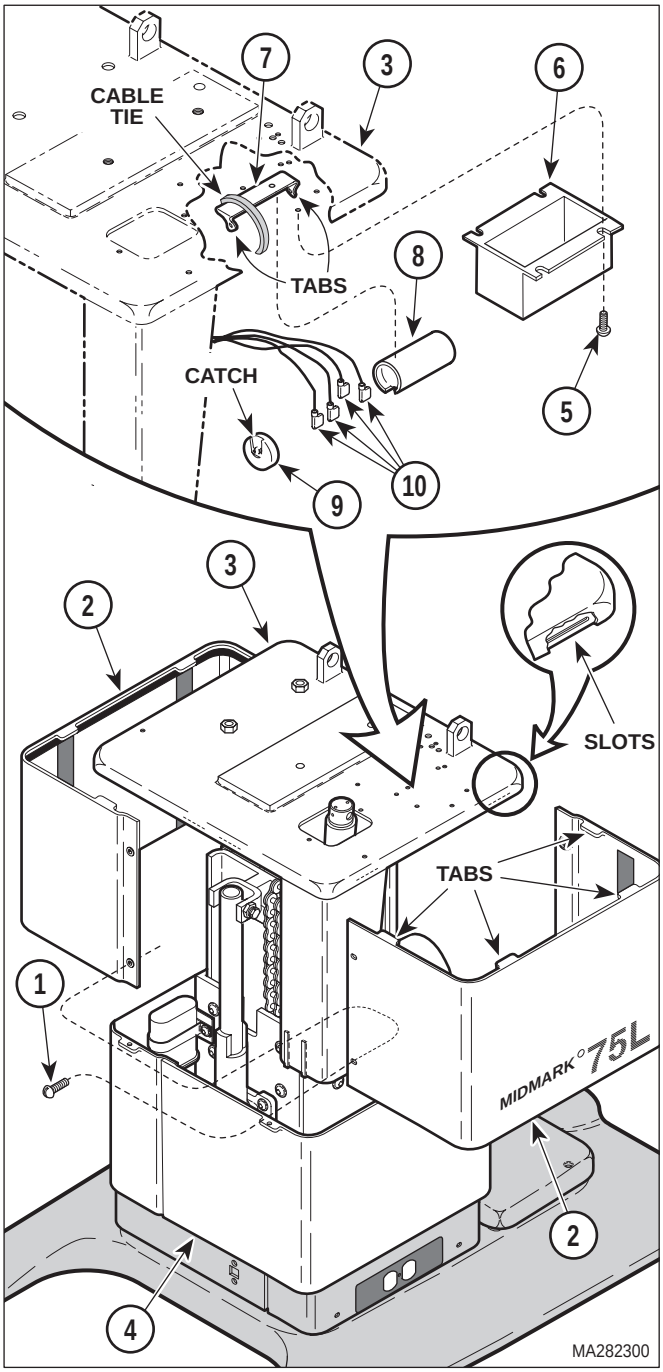

Figure 4-5. Tilt Capacitor Removal / Installation

(4) Secure bundle of wire harnesses to capacitor mounting bracket (7) with a cable tie.

(5) Install connection cover (6) on column adapter weldment (3) and secure with two screws (5).

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(6) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (4) is captured by R.H. and L.H. outer shrouds (2).

(7) Plug table power cord into wall outlet.

4.5 Back Actuator Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

NOTE
Steps 6 thru 9 of removal and steps 7 thru 9 of installation describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(1) Unplug table power cord from wall outlet.

(2) Remove upholstered back (1, Figure 4-6) from back board (2).

(3) Remove four nuts (3), screws (4), and back board (2) from back weldment (5).

(4) Remove two screws (6), lockwashers (7), and back actuator limit switch assembly (8) from back actuator (9).

(5) Remove two screws (10) and back capacitor cover (11) from back weldment (5).

(6) Using screwdriver, pry tab of capacitor mounting bracket (12) outward; then remove back capacitor (13) from capacitor mounting bracket.

(7) Remove cap (14) from back capacitor (13).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(8) Discharge back capacitor (13).

(9) Tag and disconnect two wires (15) from terminals of back capacitor (13).

(10) Disconnect actuator wire (16) from wire (17).

(11) Remove snap bushing (18) from back capacitor cover (11).

(12) Pull back actuator wires thru snap bushing (18).

(13) While supporting back weldment (1, Figure 4-7), remove two e-rings (2) and clevis pin (3) which is securing back actuator (4) to seat weldment (5). Lower back weldment down.

(14) Remove two e-rings (6), clevis pin (7), and back actuator (4) from back weldment (1).

(15) If back actuator (4) is being replaced, measure and record Distance A.

B. Installation

CAUTION
Do not drill and install roll pin until later step.

(1) Screw or unscrew clevis (8, Figure 4-7) of new back actuator (4) until Distance A is set.

(2) Install back actuator (4) on back weldment (1) and secure with clevis pin (7) and two e-rings (6).

(3) Raise back weldment (1) into position; then temporarily connect back actuator (4) to seat weldment (5) with clevis pin (3).

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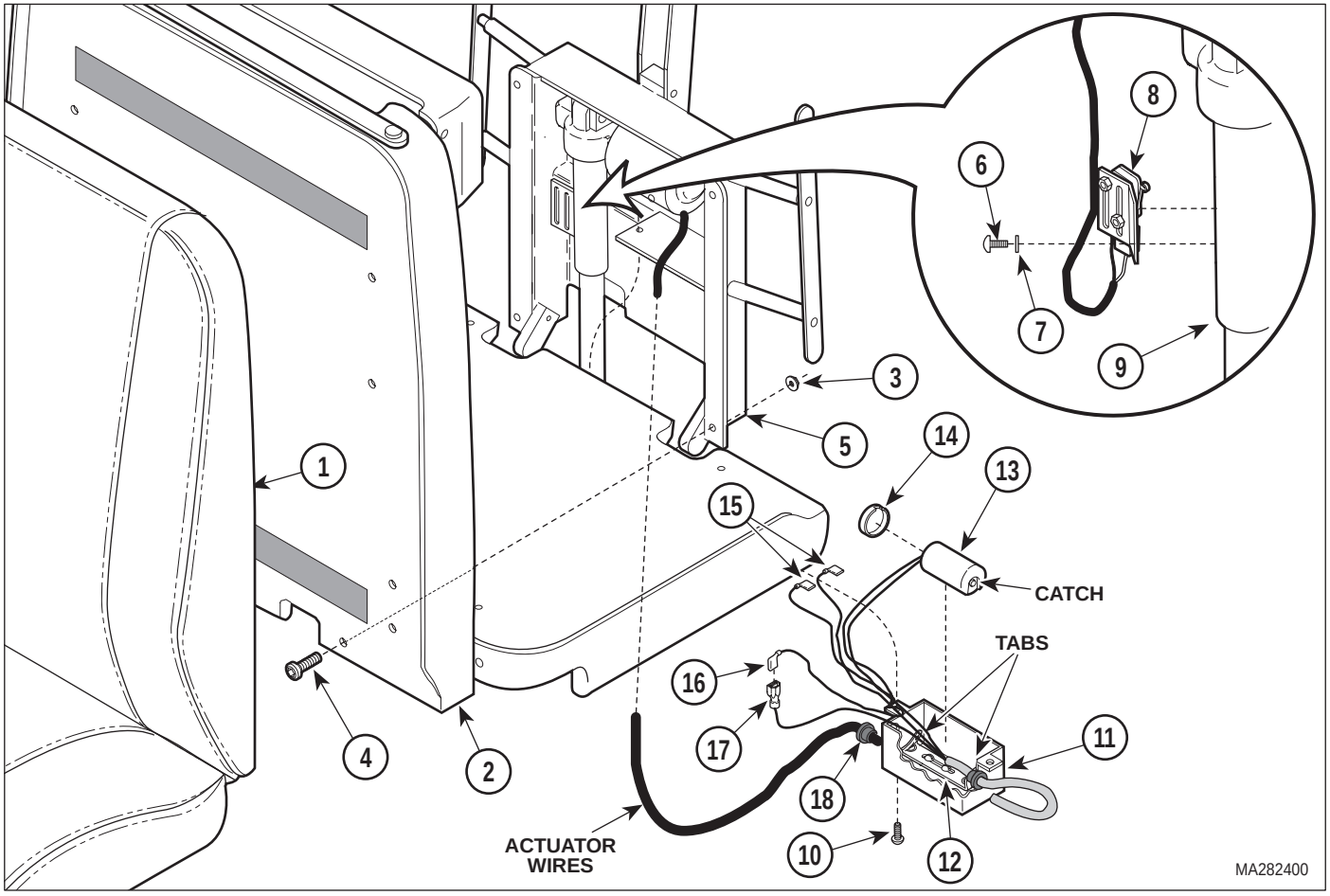

Figure 4-6. Wires Disconnection / Connection

(4) Pull back actuator wires thru snap bushing (18, Figure 4-6).

(5) Install snap bushing (18) in back capacitor cover (11).

(6) Connect actuator wire (16) to wire (17).

(7) Connect two wires (15) to terminals of back capacitor (13).

(8) Install cap (14) on back capacitor (13).

(9) Position bottom of back capacitor (13) on capacitor mounting bracket (12) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the capacitor mounting bracket down over the catch of cap (14). Make sure back capacitor is held firmly in place.

(10) Install back capacitor cover (11) on back weldment (5) and secure with two screws (10).

(11) Install back actuator limit switch assembly (8) on back actuator (9) and secure with two lockwashers (7) and screws (6).

(12) Plug table power cord into wall outlet.

(13) Lower BACK DOWN function all the way down (until back actuator can be heard free wheeling).

(14) Observe. Back weldment (1, Figure 4-7) should be parallel with seat weldment (5). If back weldment *is* parallel with seat weldment, go to step 19. If back weldment *is not* parallel with seat weldment, go to step 15.

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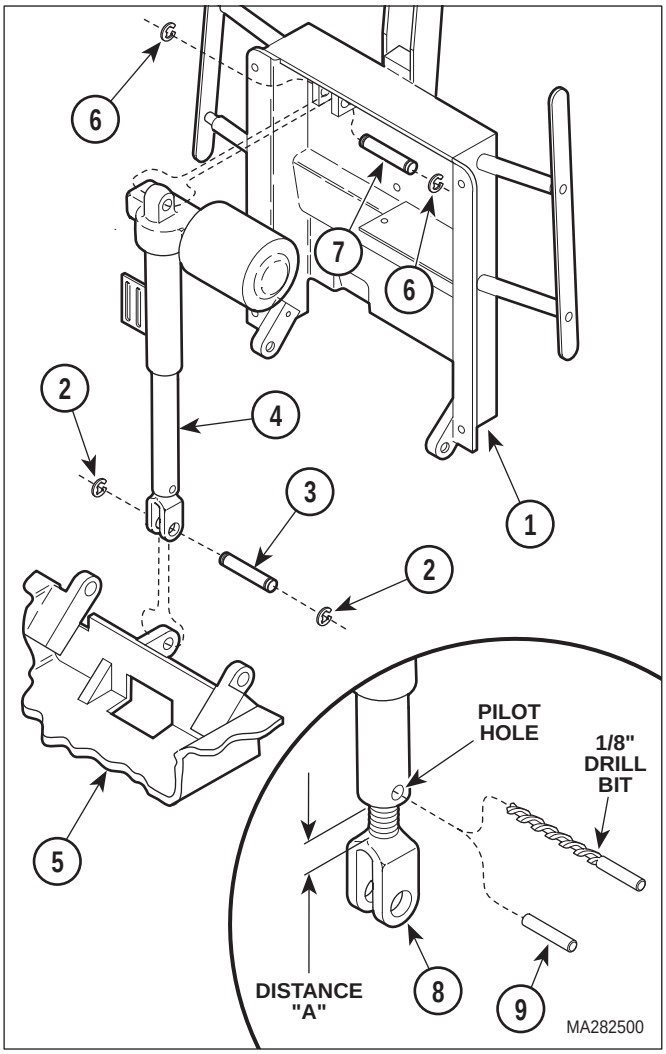

Figure 4-7. Back Actuator Removal / Installation

(15) While supporting back weldment (1), remove clevis pin (3) securing clevis (8) to seat weldment (5).

(16) Screw clevis (8) inward or outward as determined necessary in step 14.

(17) Connect clevis (8) to seat weldment (5) with clevis pin (3).

(18) Repeat steps 13 thru 17 until back weldment (1) is parallel with seat weldment (5).

(19) Install two e-rings (2) on clevis pin (3).

(20) Using pilot hole as a guide, drill hole thru clevis (8) with 1/8 in. drill bit.

(21) Secure clevis (8) in position by installing roll pin (9) in pilot hole.

(22) Check adjustment of back actuator limit switch (Refer to para 4.7).

(23) Coat threads of four screws (4, Figure 4-6) with removable threadlocking adhesive (Loctite 242).

(24) Install back board (2) on back weldment (5) and secure with four screws (4) and nuts (3).

(25) Install upholstered back (1) on back board (2).

4.6 Back Capacitor Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

NOTE
Steps 5 thru 8 of removal and steps 1thru 3 of installation describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(1) Unplug table power cord from wall outlet.

(2) Remove upholstered back (1, Figure 4-8) from back board (2).

(3) Remove four nuts (3), screws (4), and back board (2) from back weldment (5).

(4) Remove two screws (6) and back capacitor cover (7) from back weldment (5).

(5) Using screwdriver, pry tab of capacitor mounting bracket (8) outward; then remove back capacitor (9) from capacitor mounting bracket.

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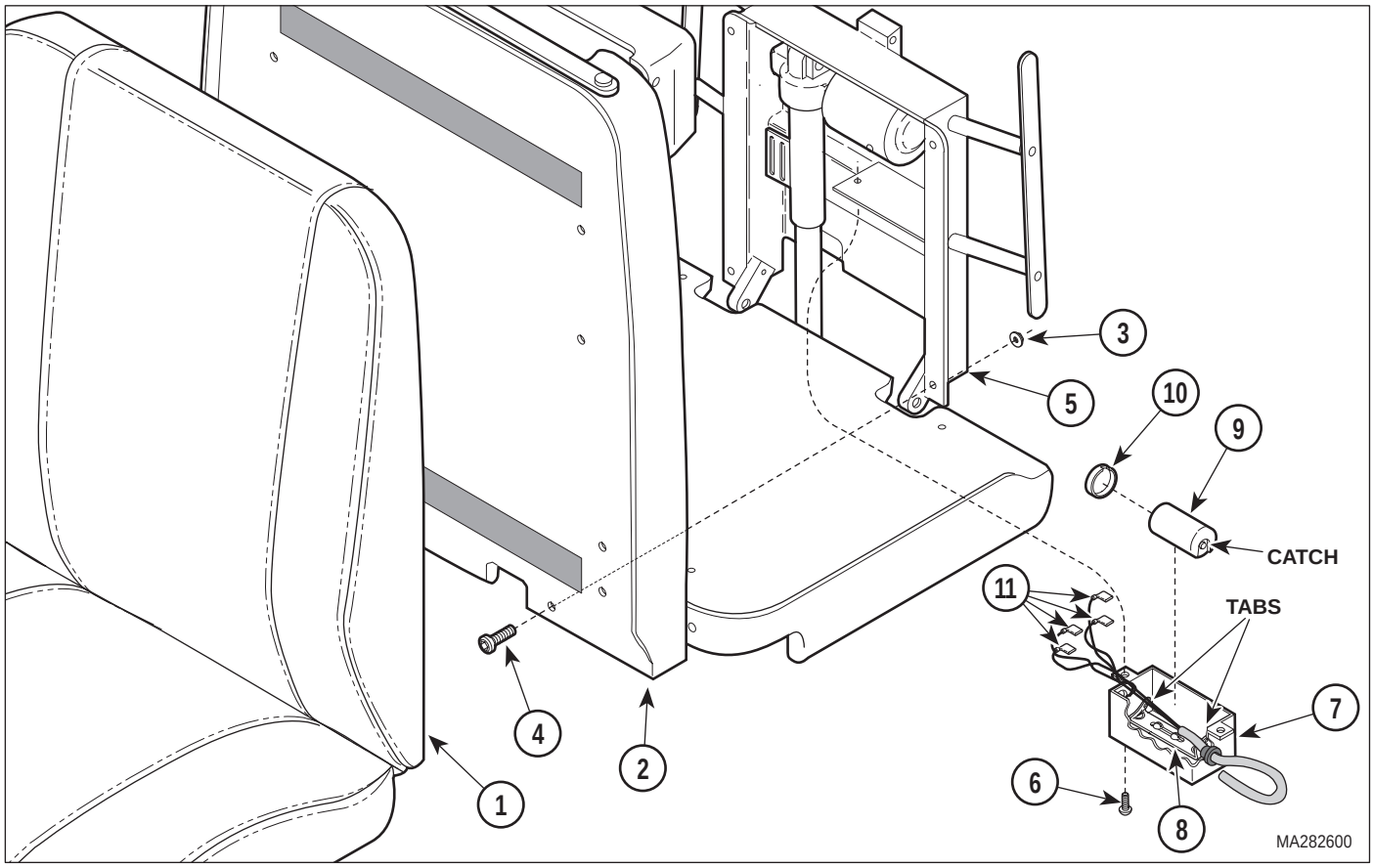

Figure 4-8. Back Capacitor Removal / Installation

(6) Remove cap (10) from back capacitor (9).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(7) Discharge back capacitor (9).

(8) Tag and disconnect four wires (11) from terminals of back capacitor (9).

B. Installation

(1) Connect four wires (11) to terminals of back capacitor (9).

(2) Install cap (10) on back capacitor (9).

(3) Position bottom of back capacitor (9) on capacitor mounting bracket (8) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the capacitor mounting bracket down over the catch of cap (10). Make sure back capacitor is held firmly in place.

(4) Install back capacitor cover (7) on back weldment (5) and secure with two screws (6).

(5) Coat threads of four screws (4) with removable threadlocking adhesive (Loctite 242).

(6) Install back board (2) on back weldment (5) and secure with four screws (4) and nuts (3).

(7) Install upholstered back (1) on back board (2).

(8) Plug table power cord into wall outlet.

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4.7 Back Actuator Limit Switch Removal / Installation / Adjustment

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove upholstered back (1, Figure 4-9) from back board (2).

(3) Remove four nuts (3), screws (4), and back board (2) from back weldment (5).

(4) Remove two screws (6), lockwashers (7), and partially separate limit switch bracket (8) from back actuator (9).

(5) Disconnect limit switch harness (10) from back actuator limit switch (11).

(6) Mark position of two screws (12) on limit switch bracket (8).

(7) Remove two nuts (13), two screws (12), and back actuator limit switch (11) from limit switch bracket (8).

B. Installation

NOTE
Using marks, made during removal, provides a good starting point in the adjustment of the back actuator limit switch.

(1) Install back actuator limit switch (11) on limit switch bracket (8) and secure with two screws (12) and nuts (13), making sure screws (12) are aligned with marks.

(2) Connect limit switch wire harness (10) to back actuator limit switch (11).

(3) Install limit switch bracket (8) on back actuator (9) and secure with two lockwashers (7) and screws (6).

(4) Plug table power cord into wall outlet.

(5) Run TILT DOWN function all the way down until seat weldment (14) is level (± 2°).

NOTE
Perform steps 6 and 7 to determine the position (angle) of the back weldment when the back actuator limit switch is being tripped. This is necessary to determine if the limit switch needs to be adjusted.

Also, release headrest arm (so headlock limit switch will trip) after step or TABLE DOWN, BACK DOWN, AND TILT UP functions will not work.

(6) Run BACK UP function all the way up.

(7) While pushing in on headrest arm to untrip the headlock limit switch, run BACK DOWN function downward until it automatically stops (should be approximately 30° above horizontal).

CAUTION
Seat weldment (14) should be level per step 5 before taking measurement of back weldment angle. Otherwise, incorrect reading will result.

(8) Using a protractor, measure and record angle of back weldment (5).

(9) If angle *is not* 30° ± 2°, go to step 10. If angle *is* 30° ± 2°, go to step 12.

NOTE
If back weldment stops too high (above 32°), slide back actuator limit switch toward head end of table. If back weldment stop too low (below 28°), slide back actuator limit switch toward foot end of table.

(10) Loosen two nuts (13) and slide back actuator limit switch (11) toward head end of table *or* foot end of table as determined necessary; retighten two nuts (13).

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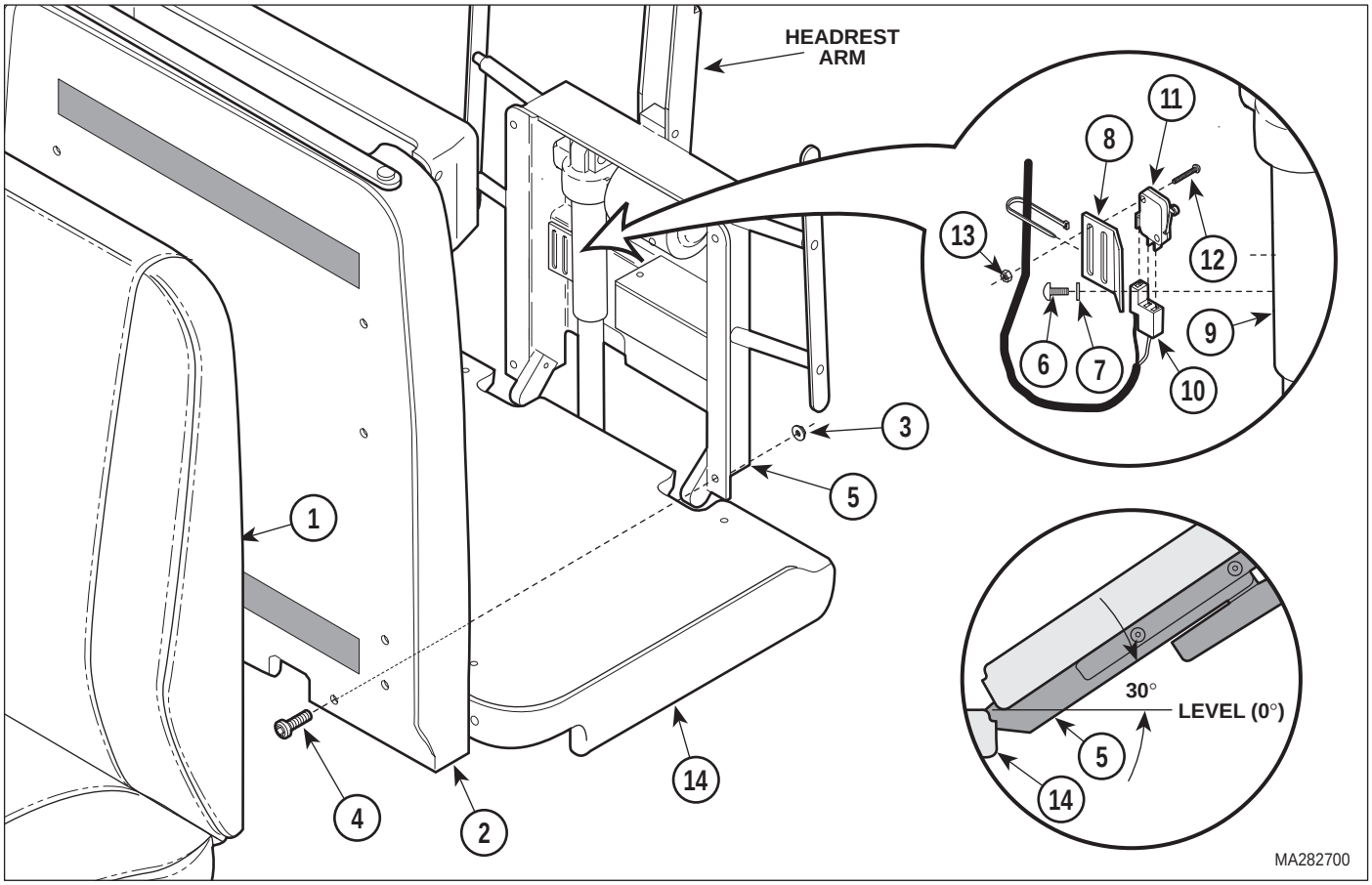

Figure 4-9. Back Actuator Limit Switch Removal / Installation

(11) Repeat steps 6 thru 10 until back weldment angle is 30° ± 2° when headlock limit switch trips.

(12) Coat threads of four screws (4) with removable threadlocking adhesive (Loctite 242).

(13) Install back board (2) on back weldment (5) and secure with four screws (4) and nuts (3).

(14) Install upholstered back (1) on back board (2).

4.8 Headlock Limit Switch Removal / Installation / Adjustment

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers / shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove upholstered back (1, Figure 4-10) from back board (2).

(3) Remove four nuts (3), screws (4), and back board (2) from back weldment (5).

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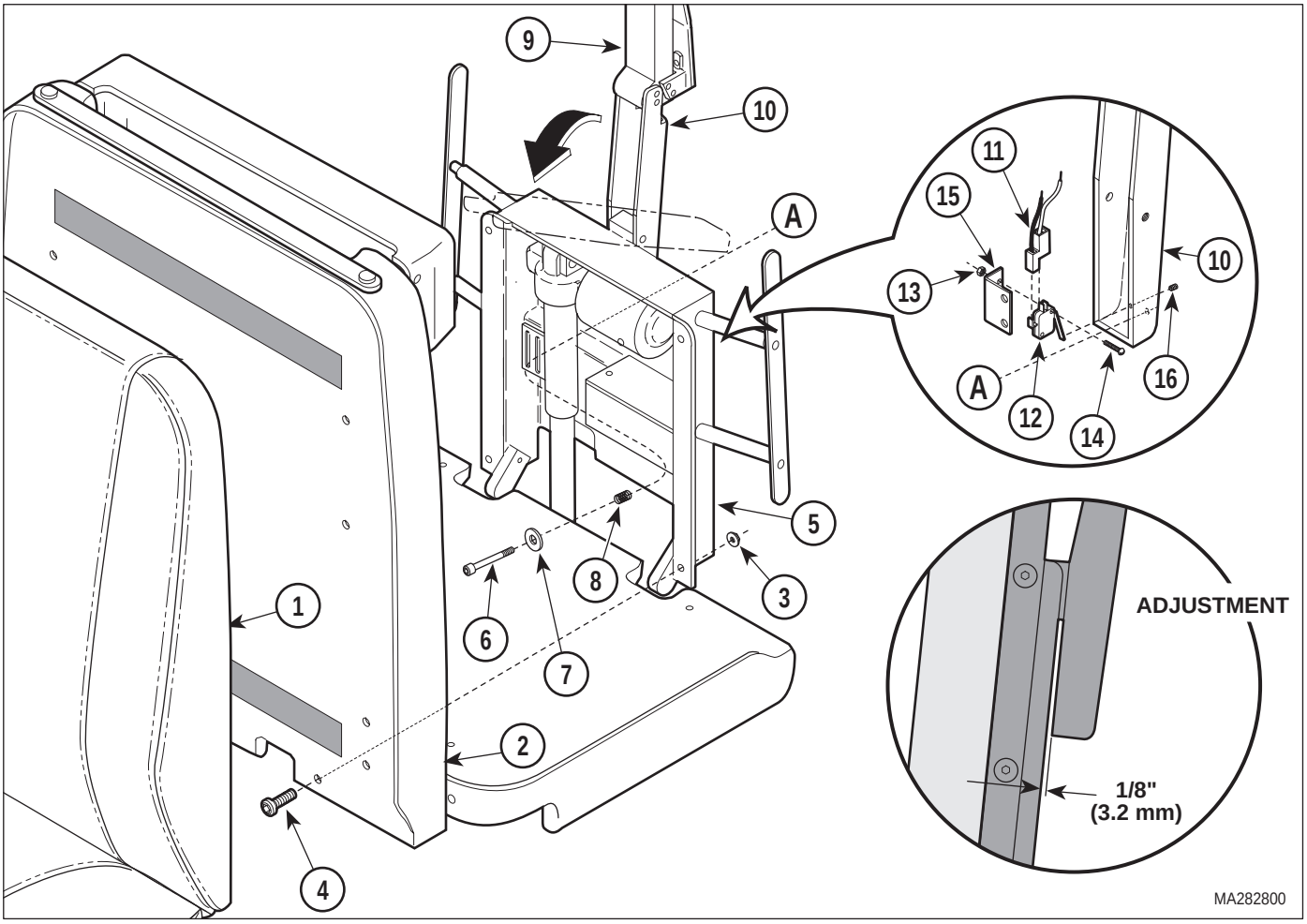

Figure 4-10. Headlock Limit Switch Removal / Installation

(4) Remove screw (6), washer(s) (7), and spring (8) from back weldment (5).

(5) Push headrest (9) forward until headlock arm weldment (10) is clear of back weldment (5).

(6) Disconnect limit switch wire harness (11) from headlock limit switch (12).

(7) Remove two nuts (13), screws (14), and headlock limit switch (12) from switch bracket (15).

B. Installation

(1) Install headlock limit switch (12) on switch bracket (15) and secure with two screws (14) and nuts (13).

(2) Connect limit switch wire harness (11) to headlock limit switch (12).

(3) Push headrest (9) back into normal position [so headlock arm weldment (10) is tight up against back weldment]).

(4) Coat threads of screw (6) with permanent threadlocking adhesive (Loctite 262).

(5) Install spring (8), washer(s) (7), and screw (6) on back weldment (5). Run screw (6) thru back weldment and into headlock arm weldment (10). Tighten screw (6) until end of screw is flush with outside surface of headlock arm weldment (10).

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(6) Remove setscrew (16) from headlock arm weldment (10).

(7) Coat threads of setscrew (16) with permanent threadlocking adhesive (Loctite 262).

NOTE
If setscrew does not provide enough adjustment range to make proper adjustment, bend trip arm of headlock limit switch slightly to make rough adjustment, and then use setscrew to fine tune the adjustment.

(8) Install setscrew (16) in headlock arm weldment (10). Adjust setscrew until headlock limit switch untrips when headlock arm weldment (10) is deflected any more than 1/8 in. (3.2 mm) from back weldment (5).

(9) Coat threads of four screws (4) with removable threadlocking adhesive (Loctite 242).

(10) Install back board (2) on back weldment (5) and secure with four screws (4) and nuts (3).

(11) Install upholstered back (1) on back board (2).

(12) Plug table power cord into wall outlet.

(13) Check for proper functioning and adjustment of headlock limit switch; TABLE DOWN, BACK DOWN, and TILT UP function should not run when headlock arm weldment is deflected more than 1/8 in. (3.2 mm) and back section is below +30 degrees.

4.9 Foot Actuator Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers / shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

NOTE
Steps 6 thru 9 of removal and steps 9 thru 11 of installation describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(1) Unplug table power cord from wall outlet.

(2) Squeeze release latches and remove foot board assembly (1, Figure 4-11) from foot extension weldment (2).

(3) Remove four screws (3) and front trim (4) from foot extension weldment (2).

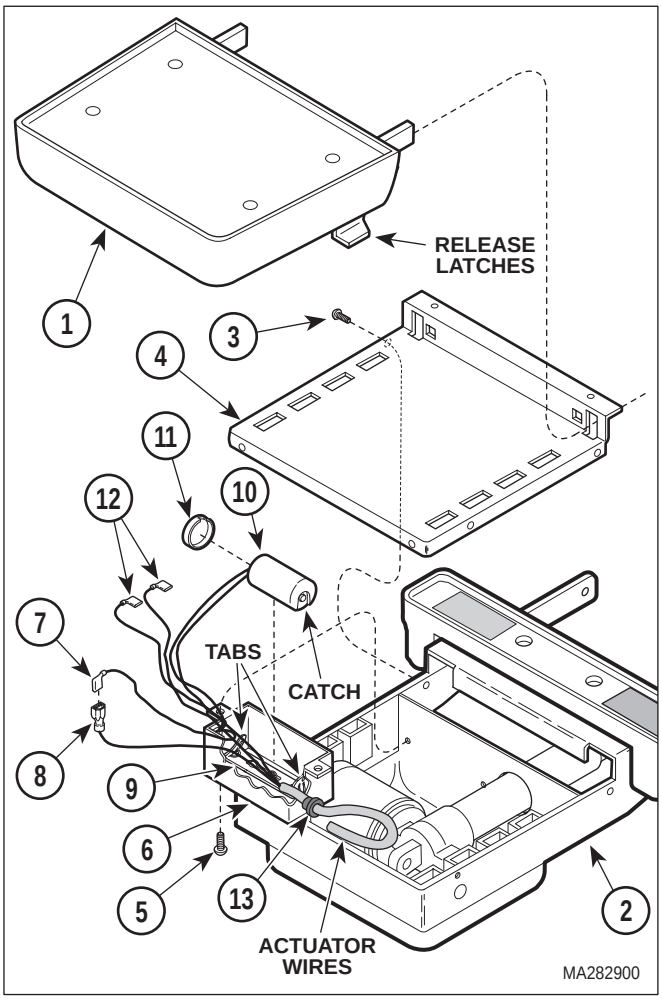

Figure 4-11. Wires Disconnection / Connection

(4) Remove two screws (5) and partially remove foot capacitor cover (6) from foot extension weldment (2).

(5) Disconnect wire (7) from foot actuator wire (8).

(6) Using screwdriver, pry tab of capacitor mounting bracket (9) outward; then remove foot capacitor (10) from capacitor mounting bracket.

(7) Remove cap (11) from foot capacitor (10).

DANGER

A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(8) Discharge foot capacitor (10).

(9) Tag and disconnect two wires (12) from terminals of foot capacitor (10).

(10) Remove snap bushing (13) from foot capacitor cover (6).

(11) Pull actuator wires thru snap bushing (13).

(12) Remove hole plug (1, Figure 4-12) from foot extension weldment (2).

(13) Remove two e-rings (3) from clevis pin (4).

(14) Using a hammer and punch, drive clevis pin (4) from foot extension weldment (2).

(15) Loosen two jam nuts (5); Then, while supporting foot extension weldment (2), remove two pivot screws (6) securing foot actuator (7) to seat weldment (8).

(16) Remove foot actuator (7) from foot extension weldment (2).

(17) Remove foot actuator bellows (9) from shaft of foot actuator (7).

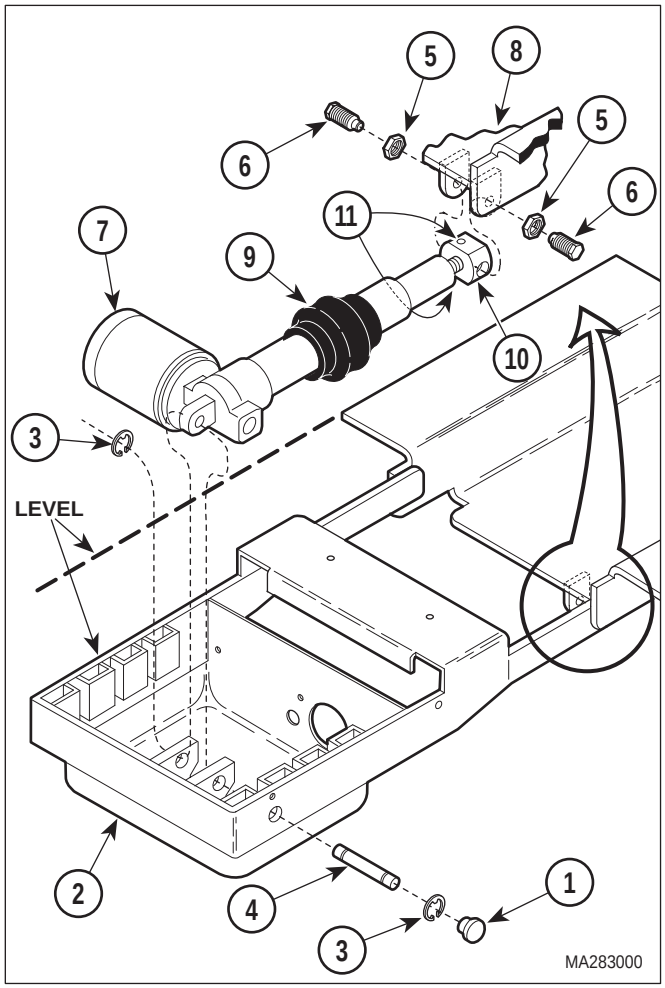

Figure 4-12. Foot Actuator Removal / Installation

B. Installation

(1) Install foot actuator bellows (9, Figure 4-12) on shaft of foot actuator (7).

(2) Screw adjustable end mount (10) on shaft of foot actuator (7). Tighten two setscrews (11)./

(3) Position foot actuator (7) in foot extension weldment (2).

(4) Secure foot actuator (7) to foot extension weldment (2) with clevis pin (4) and two e-rings (3).

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(5) Seat the foot actuator bellows (9) in foot extension weldment (2) properly.

(6) Install hole plug (1) in foot extension weldment (2).

(7) Pull actuator wires thru snap bushing (13, Figure 4-11).

(8) Install snap bushing (13) in foot capacitor cover (6).

(9) Connect two wires (12) to terminals of foot capacitor (10).

(10) Install cap (11) on foot capacitor (10).

(11) Position bottom of foot capacitor (10) on capacitor mounting bracket (9) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the capacitor mounting bracket down over the catch of cap (11). Make sure back capacitor is held firmly in place.

(12) Connect foot actuator wire (8) to wire (7).

(13) Install foot capacitor cover (6) on foot extension weldment (2) and secure with two screws (5).

(14) Install front trim (4) on foot extension weldment (2) and secure with four screws (3).

(15) Install two jam nuts (5, Figure 4-12) on two pivot screws (6) fully.

(16) Connect foot actuator (7) to seat weldment (8) and secure with two pivot screws (6).

(17) Plug table power cord into wall outlet.

(18) Run FOOT UP function until the foot actuator (7) is fully extended (actuator can be heard free wheeling).

(19) Observe. If foot extension weldment (2) *is* level with seat weldment (8), go to step 23. If foot extension weldment (2) *is not* level with seat weldment (8), go to step 20.

(20) While supporting foot extension weldment (2), remove two pivot screws (6).

(21) Loosen two setscrews (11); then screw adjustable end mount (10) in or out as determined necessary in step 19. Tighten two setscrews (11).

(22) Repeat steps 16 thru 21 until foot extension weldment (2) is level with seat weldment (8).

(23) Tighten two pivot screws (6) until they bottom out; then back pivot screws off 1/8 to 1/4 turn.

(24) Secure two pivot screws (6) in position by tightening jam nuts (5). Tighten jam nuts (5) to 45 to 55 ft-lbs (61 to 74.5 kg).

(25) Install foot board weldment (1, Figure 4-11) on foot extension weldment (2), making sure foot board weldment is properly latched.

4.10 Foot Capacitor Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers / shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

NOTE
Steps 5 thru 8 of removal and steps 1 thru 3 of installation describe the procedure for domestic units. Use these steps as a guide for export units; the steps are similar.

(1) Unplug table power cord from wall outlet.

(2) Squeeze release latches and remove foot board assembly (1, Figure 4-13) from foot extension weldment (2).

(3) Remove four screws (3) and front trim (4) from foot extension weldment (2).

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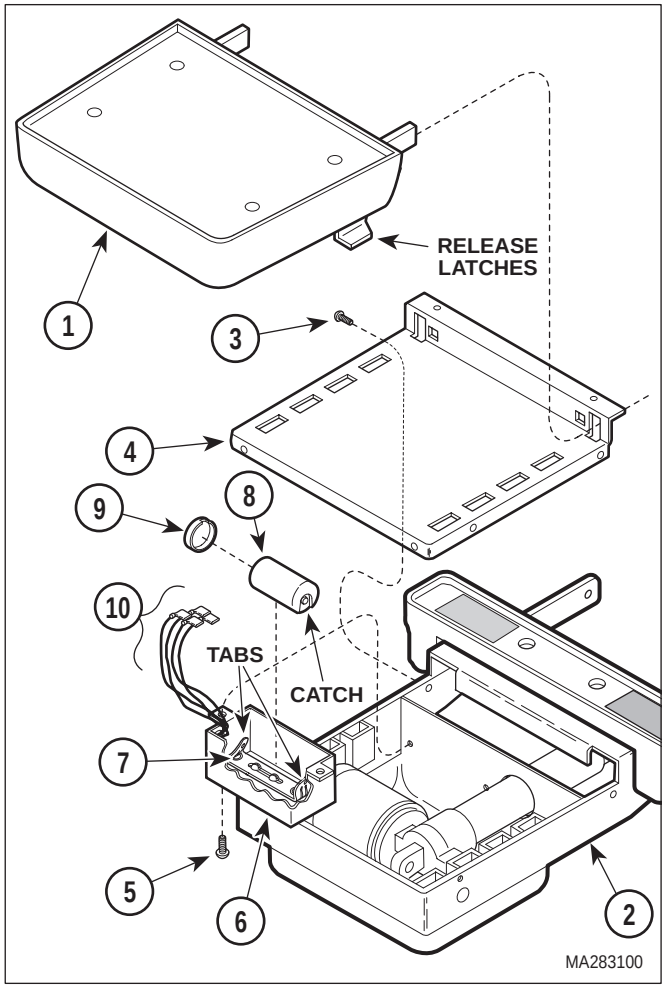

Figure 4-13. Foot Capacitor Removal / Installation

(4) Remove two screws (5) and partially remove foot capacitor cover (6) from foot extension weldment (2).

(5) Using screwdriver, pry tab of capacitor mounting bracket (7) outward; then remove foot capacitor (8) from capacitor mounting bracket.

(6) Remove cap (9) from foot capacitor (8).

DANGER

A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(7) Discharge foot capacitor (8).

(8) Tag and disconnect four wires (10) from terminals of foot capacitor (8). Remove foot capacitor from table.

B. Installation

(1) Connect four wires (10) to terminals of foot capacitor (8).

(2) Install cap (9) on foot capacitor (8).

(3) Position bottom of foot capacitor (8) on capacitor mounting bracket (7) and then push the top of the capacitor inward. Using a screwdriver, force the tab of the capacitor mounting bracket down over the catch of cap (9). Make sure foot capacitor is held firmly in place.

(4) Install foot capacitor cover (6) on foot extension weldment (2) and secure with two screws (5).

(5) Install front trim (4) on foot extension weldment (2) and secure with four screws (3).

(6) Install foot board weldment (1) on foot extension weldment (2), making sure foot board weldment is properly latched.

(7) Plug table power cord into wall outlet.

4.11 Base Actuator Removal / Installation

A. Removal

(1) Raise BASE UP function all the way up.

(2) Run TILT, FOOT, and BACK functions to level table top.

DANGER

Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(3) Unplug table power cord from wall outlet.

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(4) Remove four screws (1, Figure 4-14) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(5) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(6) Disconnect modular cords (6) from inlet PC board (7).

(7) Remove four screws (8), four screws (9), two screws (10), and partially remove R.H. and L.H. inner shrouds (11) from base casting (12).

(8) Place supports under back section and foot section.

(9) Remove four screws (1, Figure 4-15) and PC board cover (2) from base casting (3).

(10) Remove screw (4) and cable strap from base casting (3). Cut cable strap.

(11) Cut all cable ties securing base actuator wires to other wires.

(12) Remove plastic wrapping (5) from around wires.

(13) Disconnect base wire harness (6) and brake wire harness (7) from PC control board (8).

(14) Loosen screw (9).

(15) Push base capacitor (10) out of capacitor strap (11).

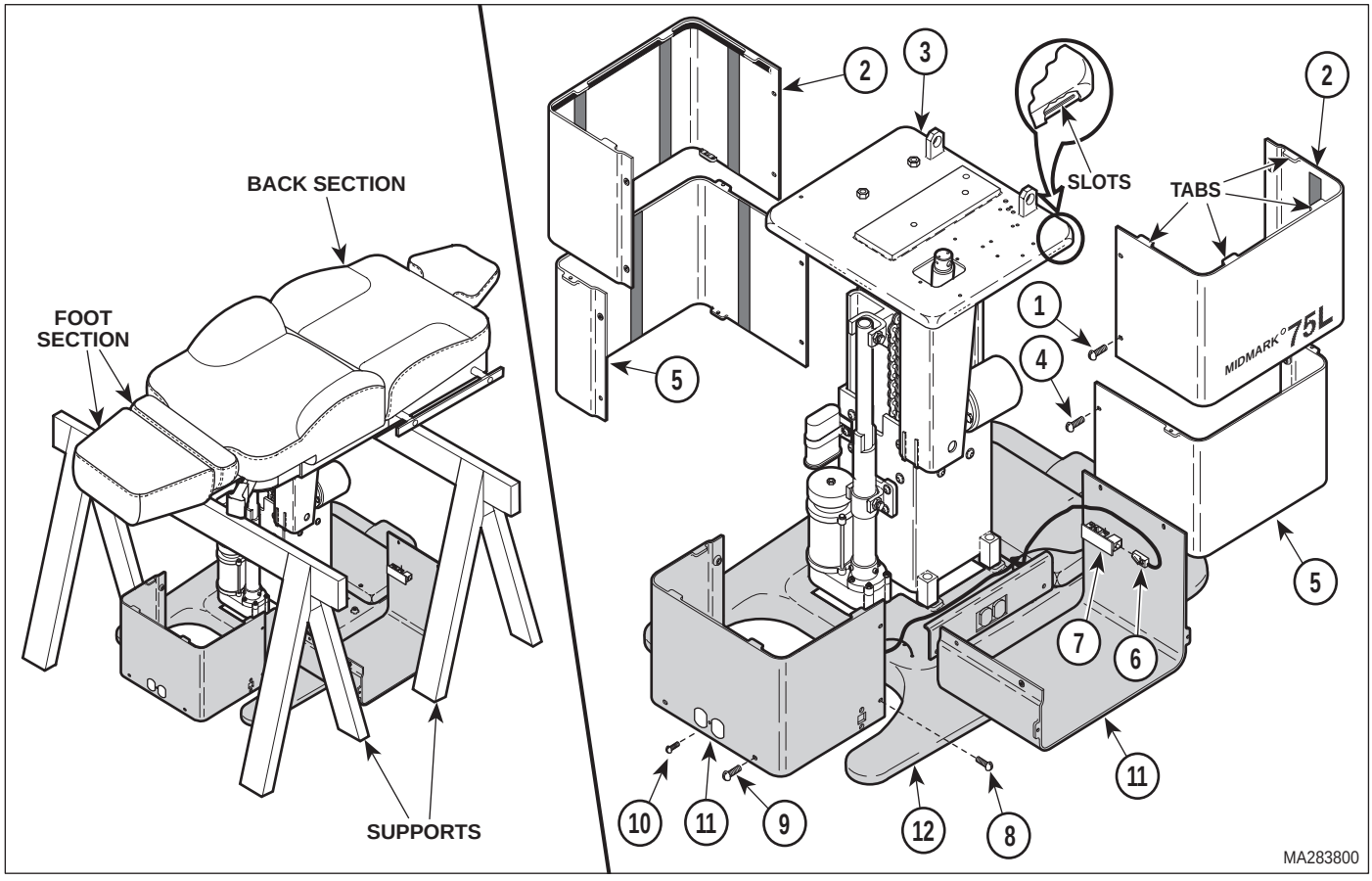

Figure 4-14. Base Actuator Access

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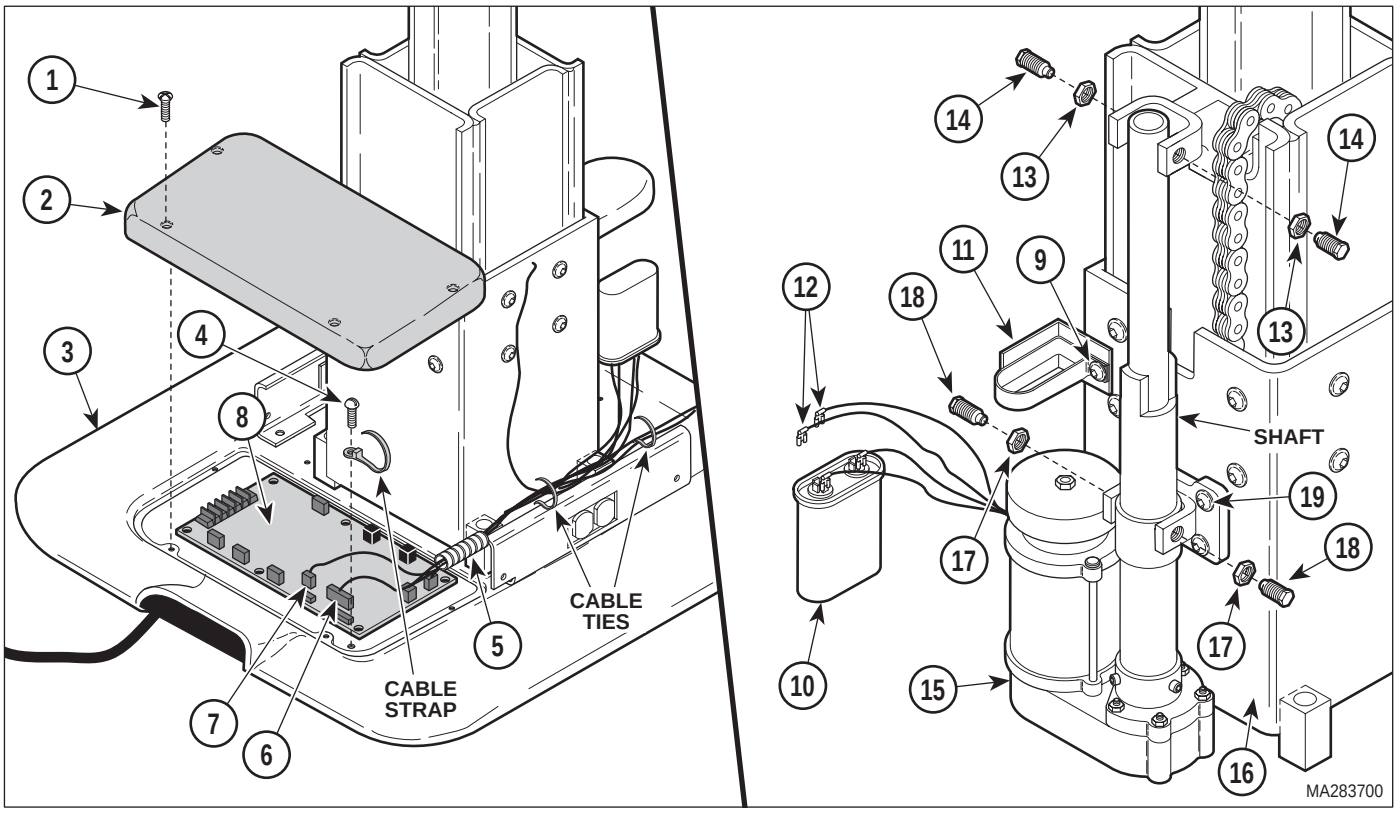

Figure 4-15. Base Actuator Removal / Installation

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(16) Discharge base capacitor (10).

(17) Tag and disconnect two wires (12) from terminals of base capacitor (10).

(18) Loosen two jam nuts (13).

DANGER
Make sure table top is securely by supports to prevent it from falling once pivot screws are removed. Failure to do so could result in serious personal injury or death.

(19) Remove two pivot screws (14) securing base actuator (15) to column assembly (16).

(20) Loosen two jam nuts (17).

(21) Remove two pivot screws (18) and base actuator (15) from column assembly (16).

(22) Loosen three screws (19).

B. Installation

(1) Remove jam nuts (13 and 17, Figure 4-15) from pivot screws (14 and 18).

(2) Clean adhesive residue from threads of pivot screws (14 and 18).

(3) Screw jam nuts (13 and 17) on pivot screws (14 and 18) fully.

(4) Coat threads of two pivot screws (18), which are directly in front of jam nuts (17), with permanent threadlocking adhesive (Loctite 262).

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NOTE
When installing pivot screws, adjust pivot screws until shaft of base actuator is centered in bracket.

(5) Install base actuator (15) on column assembly (16) and secure with two pivot screws (18). Tighten pivot screws to 50 to 60 in-lbs. (5.6 to 6.8 N•m).

(6) Tighten two jam nuts (17) to 45 to 55 ft-lbs. (61 to 74.6 N•m).

(7) Install plastic wrapping (5) around base actuator wires.

(8) Connect brake wire harness (7) and base wire harness (6) to PC control board (8).

(9) Connect two wires (12) to terminals of base capacitor (10).

(10) Slide base capacitor (10) into capacitor strap (11) and secure by tightening screw (9).

(11) Secure wires together with cable strap. Secure cable strap to base casting (3) with screw (4).

(12) Secure wires together as a bundle with two cable ties.

(13) Install PC board cover (2) on base casting (3) and secure with four screws (1).

(14) Plug modular cord (6, Figure 4-14) into inlet PC board (7).

(15) Plug table power cord into wall outlet.

(16) Run TABLE UP and / or TABLE DOWN function until shaft of base actuator (15, Figure 4-15) is aligned with bracket of column assembly (16).

(17) Coat threads of two pivot screws (14), which are directly in front of jam nuts (13), with permanent threadlocking adhesive (Loctite 262).

NOTE
When installing pivot screws, adjust pivot screws until shaft of base actuator is centered in bracket.

(18) Secure shaft of base actuator (15) on column assembly (16) and secure with two pivot screws (14). Tighten pivot screws to 50 to 60 in-lbs. (5.6 to 6.8 N•m).

(19) Tighten two jam nuts (13) to 45 to 55 ft-lbs. (61 to 74.6 N•m).

(20) Tighten three screws (19) to 17 - 20 ft-lbs (23 - 27.1 N•m).

(21) Run TABLE UP function until table top is off of supports; then remove supports from under table top.

(22) Install R.H. and L.H. inner shrouds (11, Figure 4-14) on base casting (12) and secure with two screws (10), four screws (9), and four screws (8).

(23) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (11) with four screws (4).

(24) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

4.12 Base Capacitor Removal / Installation

A. Removal

(1) Raise BASE UP function all the way up.

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(2) Unplug table power cord from wall outlet.

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(3) Remove four screws (1, Figure 4-16) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(4) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(5) Disconnect two modular cords (6) from inlet PC boards (7).

(6) Remove four screws (8), four screws (9), two screws (10), and partially remove R.H. and L.H. inner shrouds (11) from base casting (12).

(7) Loosen screw (13).

(8) Push base capacitor (14) out of capacitor strap (15).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(9) Discharge base capacitor (14).

(10) Tag and disconnect four wires (16) from terminals of base capacitor (14).

B. Installation

(1) Connect four wires (16) to terminals of base capacitor (14).

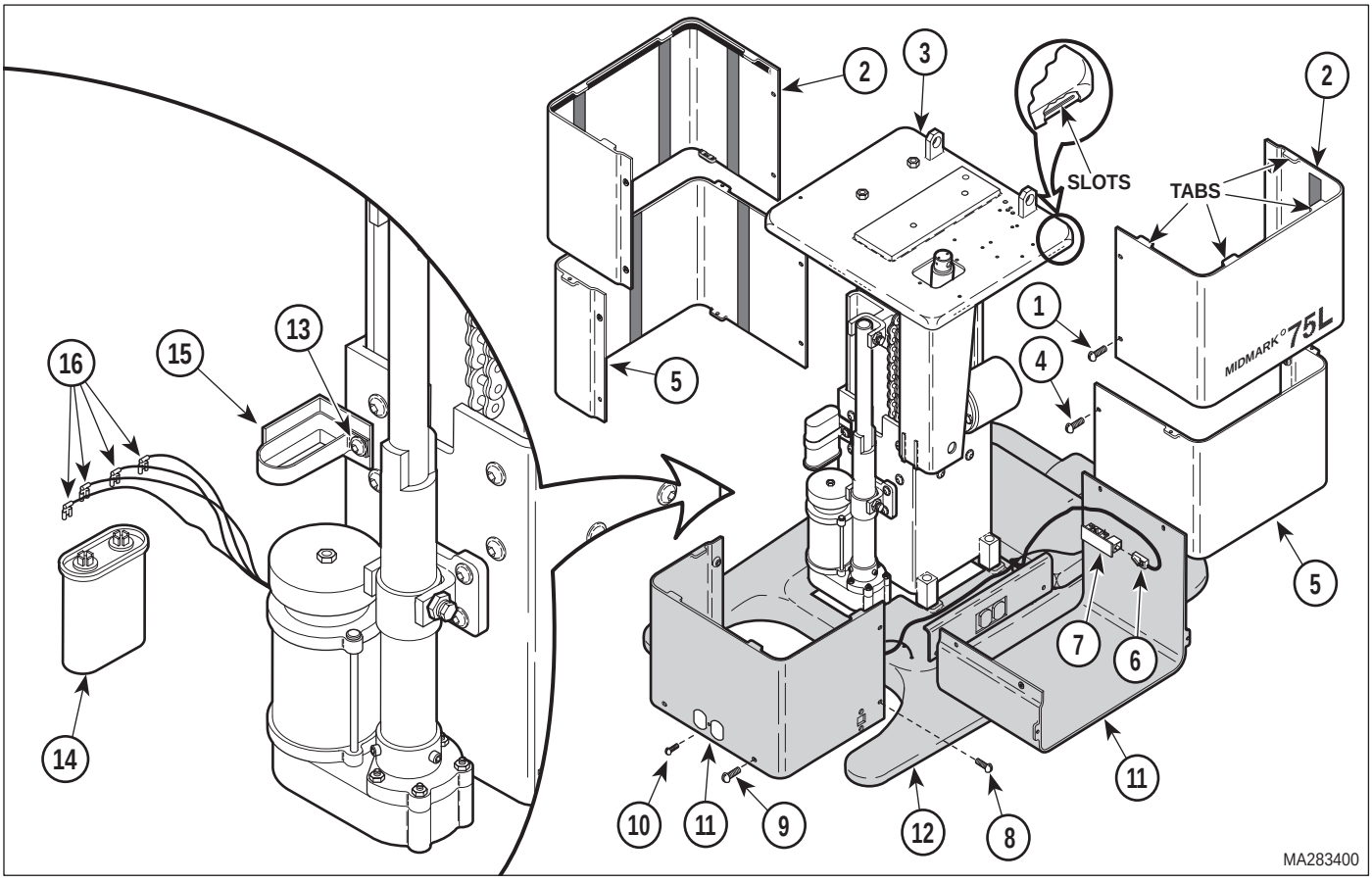

Figure 4-16. Base Capacitor Removal / Installation

(2) Slide base capacitor (14) into capacitor strap (15) and secure by tightening screw (13).

(3) Connect modular cords (6) to inlet PC boards (7).

(4) Install R.H. and L.H. inner shrouds (11) on base casting (12) and secure with two screws (10), four screws (9), and four screws (8).

(5) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (11) with four screws (4).

(6) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

4.13 Column Assembly Removal / Installation

A. Removal

(1) Raise BASE UP function all the way up.

(2) Run TILT, FOOT, and BACK functions to level table top.

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(3) Unplug table power cord from wall outlet.

(4) Remove four screws (1, Figure 4-17) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(5) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(6) Disconnect two modular cords (6) from inlet PC board (7).

(7) Remove four screws (8), four screws (9), two screws (10), and partially remove R.H. and L.H. inner shrouds (11) from base casting (12).

(8) Place supports under back section and foot section.

(9) Remove screw (1, Figure 4-18), capacitor strap (2), capacitor bracket (3), and base capacitor (4) from column assembly (5). Allow base capacitor to lay off on side.

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(10) Discharge base capacitor (4).

(11) Loosen two jam nuts (6).

DANGER
Make sure table top is securely sup ported by supports to prevent it from falling once pivot screws are removed. Failure to do so could result in serious personal injury or death.

(12) Remove two pivot screws (7) securing base actuator (8) to column assembly (5).

(13) Loosen two jam nuts (9).

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SECTION IV
MAINTENANCE / SERVICE

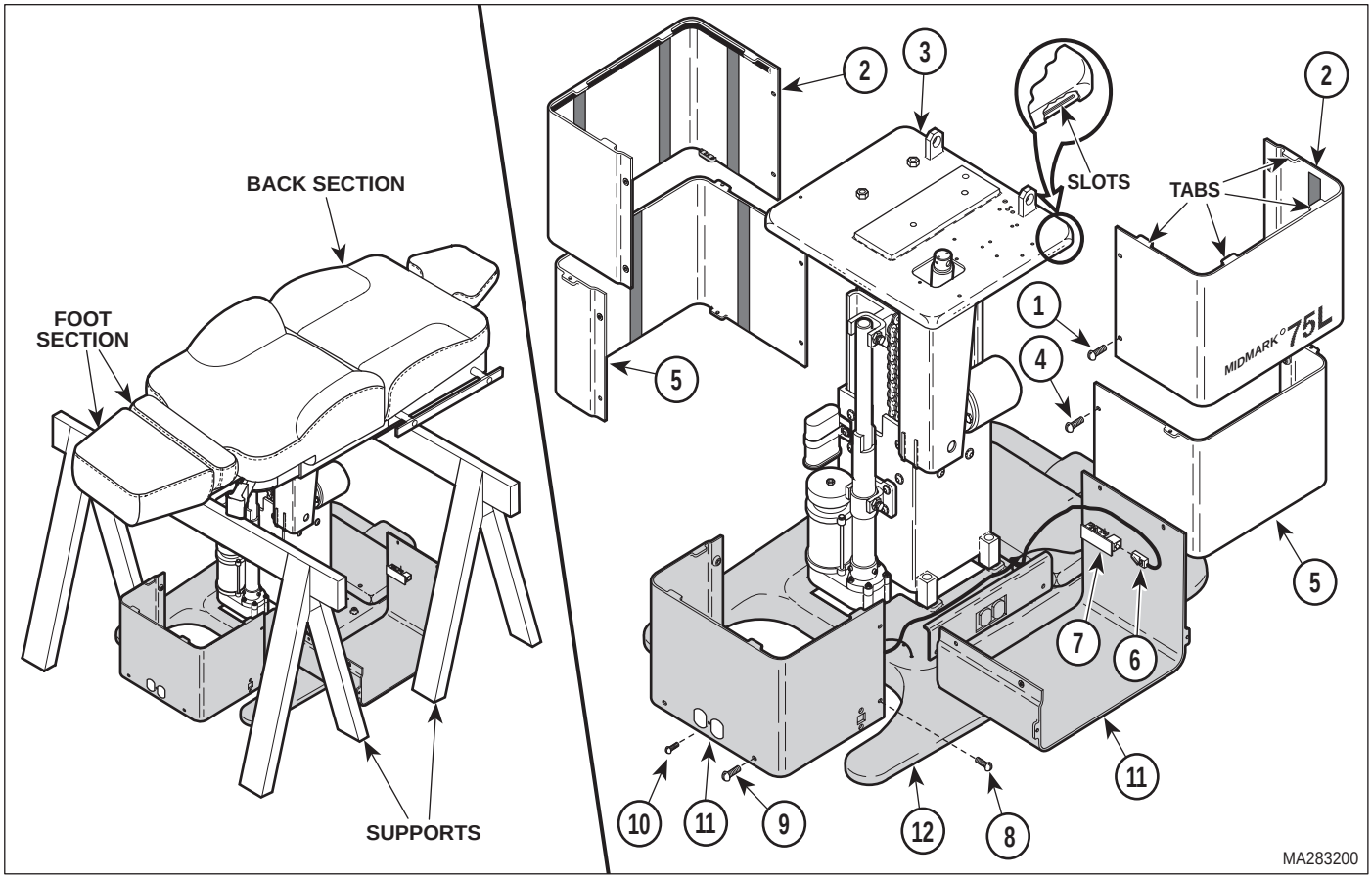

Figure 4-17. Column Assembly Access

(14) Remove two pivot screws (10) and partially remove base actuator (8) from column assembly (5). Allow base actuator to lay off on side.

(15) Loosen three screws (11).

(16) Remove two screws (1, Figure 4-19), lockwashers (2), and base up limit switch assembly (3) from column assembly (4).

(17) Remove two screws (5), lockwashers (6), and base down limit switch assembly (7) from column assembly (4).

(18) Remove two locknuts (8) and four screws (9) which secures column assembly (4) to column adapter weldment (10).

(19) Remove four screws (11) and washers (12) securing column assembly (4) to base weldment (13).

(20) Remove column assembly (4) from base weldment (13).

B. Installation

(1) Position column assembly (4, Figure 4-19) in base weldment (13) and secure with four washers (12) and screws (11). Tighten four screws (11) to 50 to 60 ft-lbs (67.8 to 81.4 N•m).

(2) Remove jam nuts (6 and 9, Figure 4-18) from pivot screws (7 and 10).

(3) Clean adhesive residue from threads of pivot screws (7 and 10).

(4) Screw jam nuts (6 and 9) on pivot screws (7 and 10) fully.

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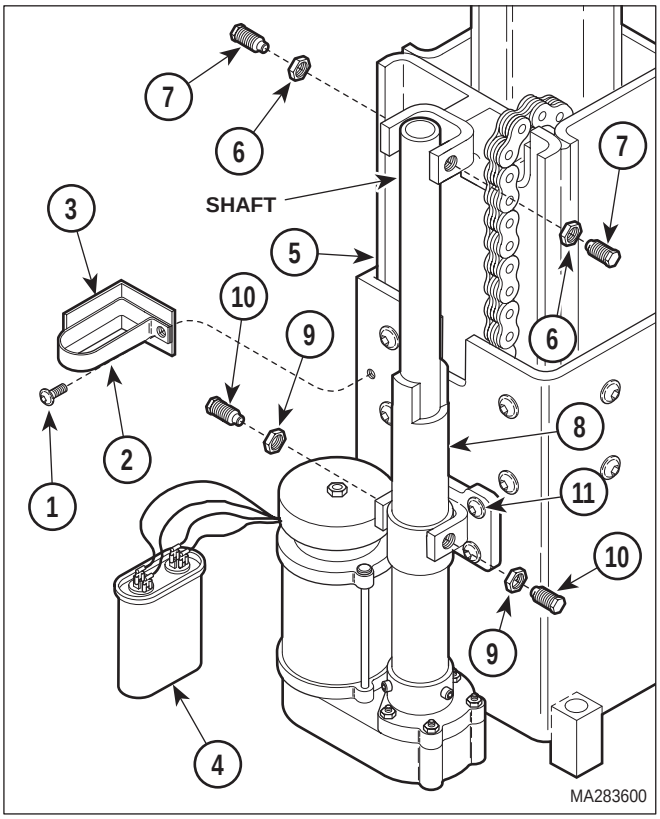

Figure 4-18. Base Actuator Disconnection / Connection

(5) Coat threads of two pivot screws (10), which are directly in front of jam nuts (9), with permanent threadlocking adhesive (Loctite 262).

NOTE
When installing pivot screws, adjust pivot screws until shaft of base actuator is centered in bracket.

(6) Install base actuator (8) on column assembly (5) and secure with two pivot screws (10). Tighten pivot screws to 50 to 60 in-lbs (5.6 to 6.8 N•m).

(7) Tighten two jam nuts (9) to 45 to 55 ft-lbs. (61 to 74.6 N•m).

(8) Install base capacitor (4), capacitor bracket (3), and capacitor strap (2) on column assembly (5) and secure with screw (1).

(9) Plug table power cord into wall outlet.

(10) Plug modular cord (6, Figure 4-17) into port of inlet PC board (7).

(11) Run TABLE UP and / or TABLE DOWN function until shaft of base actuator (8, Figure 4-18) is aligned with bracket of column assembly (5).

(12) Coat threads of two pivot screws (7), which are directly in front of jam nuts (6), with permanent threadlocking adhesive (Loctite 262).

NOTE
When installing pivot screws, adjust pivot screws until shaft of base actuator is centered in bracket.

(13) Secure shaft of base actuator (8) to column assembly (5) and secure with two pivot screws (7). Tighten pivot screws to 50 to 60 in-lbs. (5.6 to 6.8 N•m).

(14) Tighten two jam nuts (6) to 45 to 55 ft-lbs. (61 to 74.6 N•m).

(15) Tighten three screws (11) to 17 - 20 ft-lbs (23 - 27.1 N•m).

(16) Run TABLE UP function to align column assembly (4, Figure 4-20) with column adapter weldment (10).

(17) Secure column assembly (4) to column adapter weldment (10) with four screws (9) and two locknuts (8).

(18) Run TABLE UP function up slightly, and remove supports from under table top.

(19) Install base down limit switch assembly (7, figure 4-19) on column assembly (4) and secure with two lockwashers (6) and screws (5).

(20) Adjust base down limit switch (Refer to para 4.15).

(21) Install base up limit switch assembly (3) on column assembly (4) and secure with two lockwashers (2) and screws (1).

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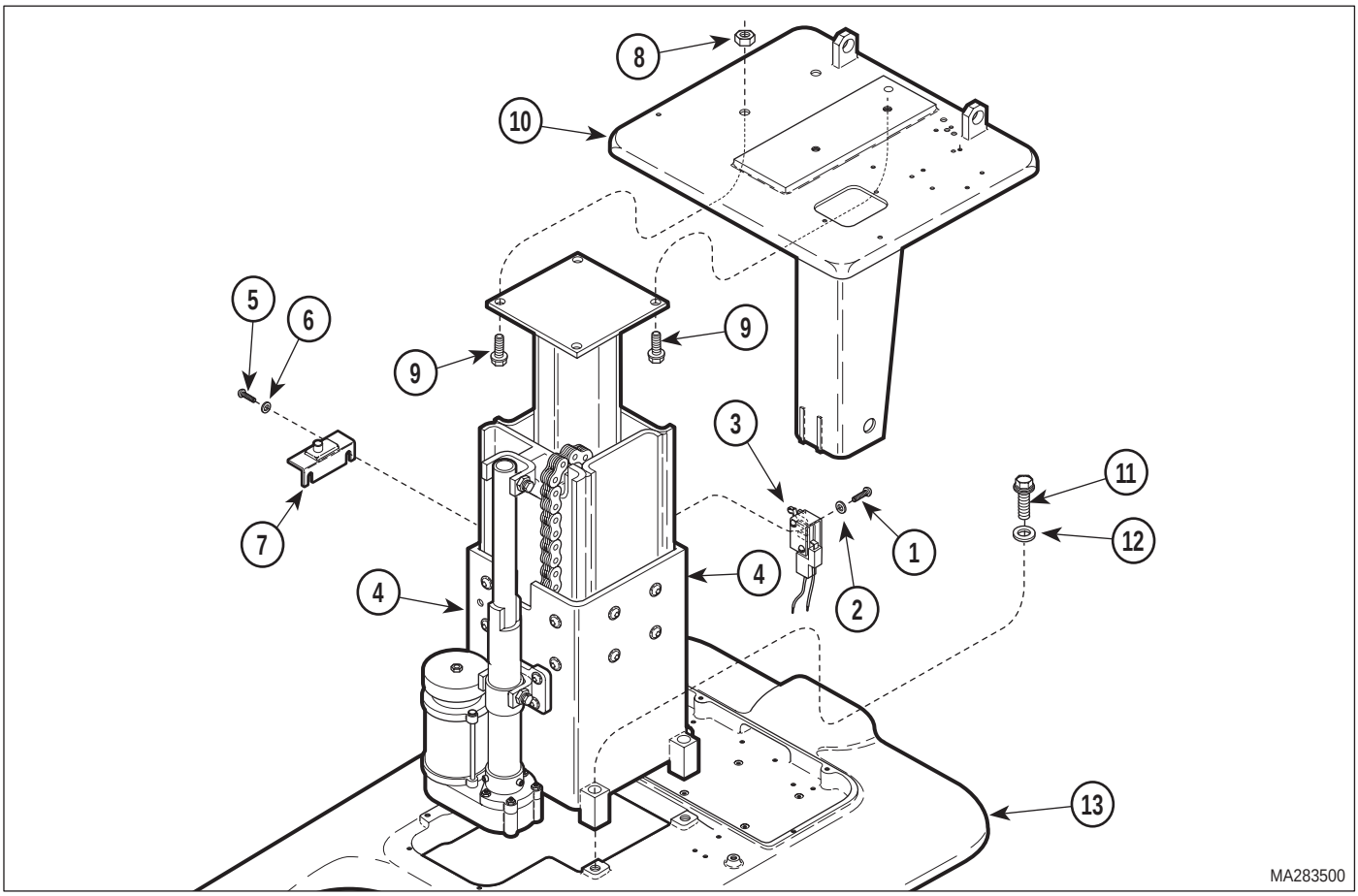

Figure 4-19. Column Assembly Removal / Installation

(22) Adjust base up limit switch (Refer to para 4.16).

(23) Install R.H. and L.H. inner shrouds (11, Figure 4-17) on base casting (12) and secure with two screws (10), four screws (9), and four screws (8).

(24) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (11) with four screws (4).

(25) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

4.14 Typical Actuator Motor / Actuator Brake Removal / Installation (Applies To All Actuators, Except Base Actuator)

A. Removal

(1) Remove malfunctioning actuator assembly:
Tilt actuator assembly (Refer to para 4.3).
Back actuator assembly (Refer to para 4.5).
Foot actuator assembly (Refer to para 4.9).

(2) Remove two nuts (1, Figure 4-20) and actuator motor (2) from actuator mechanism (3).

(3) Remove two shoulder washers (4) from actuator mechanism (3).

(4) Remove spacer (5) and motor coupler (6) from shaft of actuator motor (2).

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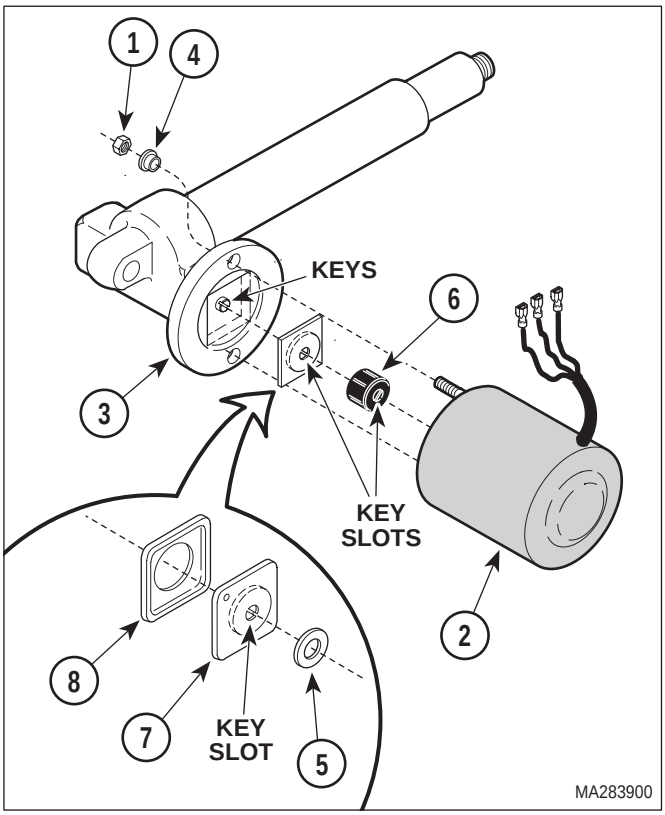

Figure 4-20. Actuator Motor / Actuator Brake Removal / Installation

NOTE
A needle nose pliers should be used to extract the actuator brake from the actuator mechanism. Grasp the raised round plate of the actuator brake with the pliers and pull.

(5) Remove actuator brake (7) and rubber damper (8) from shaft of actuator mechanism (3).

B. Installation

NOTE
The rubber damper must be installed so its flat side faces the inside of the actuator mechanism. The actuator brake must be installed so its flattest side faces outward. The shaft of the actuator mechanism may be turned with a screwdriver to help align the keys of the actuator mechanism shaft with the key slots in actuator brake.

(1) Install rubber damper (8), actuator brake (7), and spacer (5) in actuator mechanism (3).

(2) Install motor coupler (6) on shaft of actuator motor (2).

(3) Install two shoulder washers (4) in actuator mechanism (3).

(4) Align keys of actuator mechanism (3) shaft with key slots of motor coupler (6) and then install actuator motor (2) on actuator mechanism (3) and secure with two nuts (1).

(5) Install actuator assembly:
Tilt actuator assembly (Refer to para 4.3).
Back actuator assembly (Refer to para 4.5).
Foot actuator assembly (Refer to para 4.9).

(6) Check actuator assembly for proper operation. The actuator assembly should run normally and should not make a grinding noise. A grinding noise indicates that key slots of motor coupler were not aligned properly with keys of actuator mechanism (a grinding noise also indicates that the motor coupler is being damaged). The actuator assembly should brake properly.

4.15 Base Down Limit Switch Removal / Installation / Adjustment

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove four screws (1, Figure 4-21) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(3) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(4) Remove two screws (6), washers (7), and partially remove switch bracket (8) from column weldment (9).

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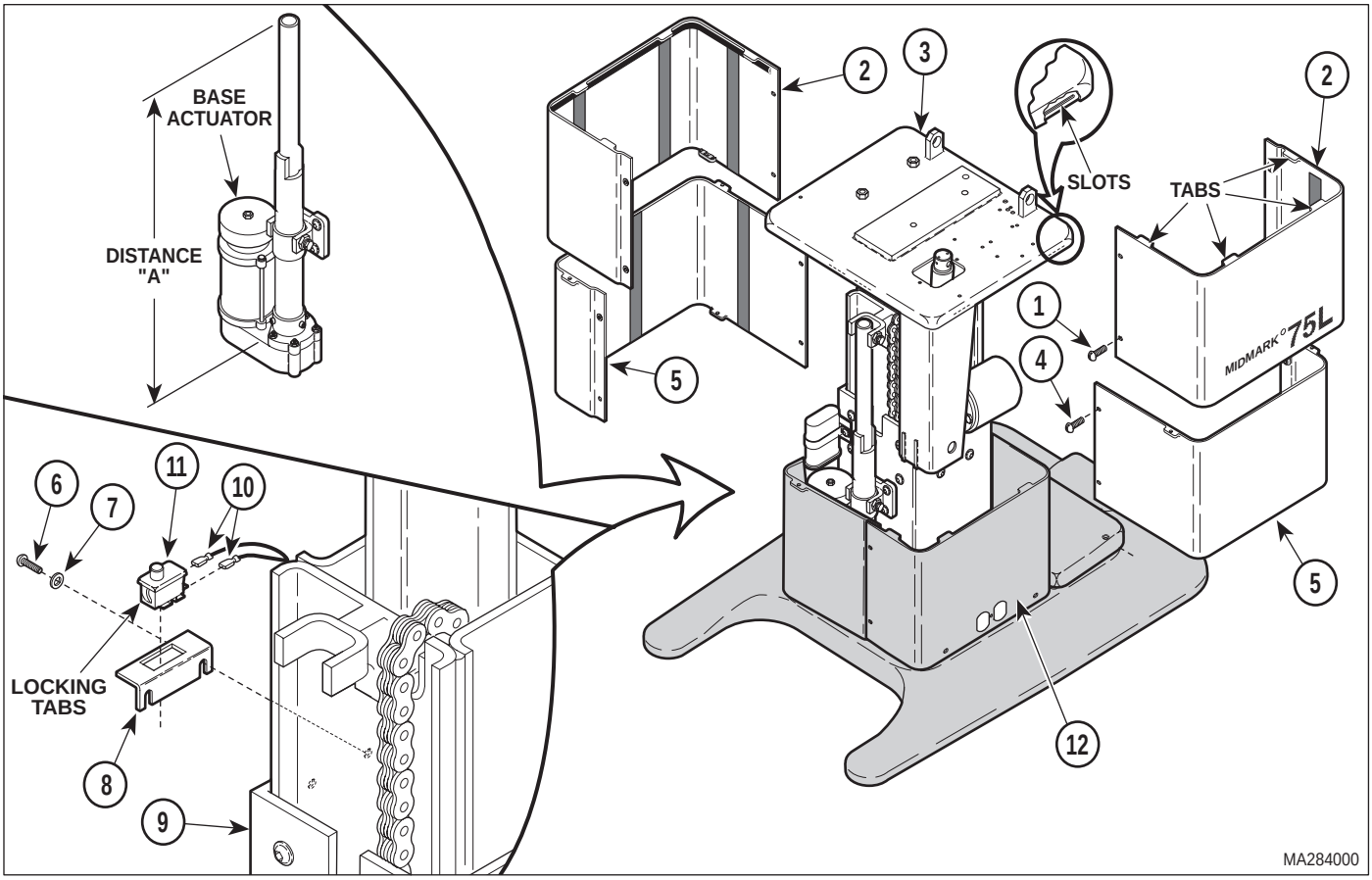

Figure 4-21. Base Down Limit Switch Removal / Installation / Adjustment

(5) Tag and disconnect two wires (10) from terminals of base down limit switch (11).

(6) While simultaneously pressing on two locking tabs of base down limit switch (11), push switch out of switch bracket (8).

B. Installation

(1) Push base down limit switch (11) into switch bracket (8) until switch "snaps" into place.

(2) Connect two wires (10) to terminals of base down limit switch (11).

(3) Install switch bracket (8) on column weldment (9) and secure with two washers (7) and screws (6).

(4) Plug table power cord into wall outlet.

(5) Run TABLE DOWN function all the way down (until base down limit switch is tripped and stops the table).

CAUTION

Distance A should be 12.55 to 12.61 in. (31.9 to 32.0 cm). Damage will occur to base actuator if Distance A is less than 12.55 (31.9 cm). The base actuator does not free wheel. Running the base actuator to its limit will damage the base actuator.

(6) Measure Distance A on base actuator.

(7) If Distance A is between 12.55 to 12.61 in. (31.9 to 32.0 cm), go to step 11.
If Distance A is not between 12.55 to 12.61 in. (31.9 to 32.0 cm), go to step 8.

(8) Raise TABLE UP function until access to base down limit switch (11) is possible.

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NOTE
Moving base down limit switch upward will lessen Distance A. Moving base down limit switch downward will increase Distance A.

(9) Loosen two screws (6); then adjust switch bracket (8) up or down as determined necessary in step 7. Tighten two screws (6).

(10) Repeat steps 5 thru 9 until Distance A is between 12.55 to 12.61 in. (31.9 to 32.0 cm). when base actuator is fully retracted (stopped by base down limit switch).

(11) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (12) with four screws (4).

(12) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

C. Adjustment Only

(1) If not already done, perform steps 1 thru 3 of para 4.15A.

(2) Perform steps 4 thru 12 of para 4.15B.

4.16 Base Up Limit Switch Removal / Installation / Adjustment

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove four screws (1, Figure 4-22) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(3) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(4) Disconnect modular cords (6) from inlet PC boards (7).

(5) Remove four screws (8), four screws (9), two screws (10), and partially remove R.H. and L.H. inner shrouds (11) from base casting (12).

(6) Remove two screws (13), washers (14), and partially remove limit switch bracket (15) from column weldment (16).

(7) Cut cable tie securing wire harness (17) to base up limit switch (18).

(8) Disconnect wire harness (17) from terminals of base up limit switch (18).

(9) Remove two nuts (19), screws (20), and base up limit switch (18) from limit switch bracket (15).

B. Installation

(1) Install base up limit switch (18) on limit switch bracket (15) and secure with two screws (20) and nuts (19).

(2) Connect wire harness (17) to terminals of base up limit switch (18).

(3) Secure wire harness (17) to base up limit switch (18) with cable tie.

(4) Install switch bracket (15) on column weldment (16) and secure with two washers (14) and screws (13).

(5) Connect modular cords (6) to inlet PC boards (7).

(6) Plug table power cord into wall outlet.

(7) Run TABLE UP function all the way up (until base up limit switch is tripped and stops the table).

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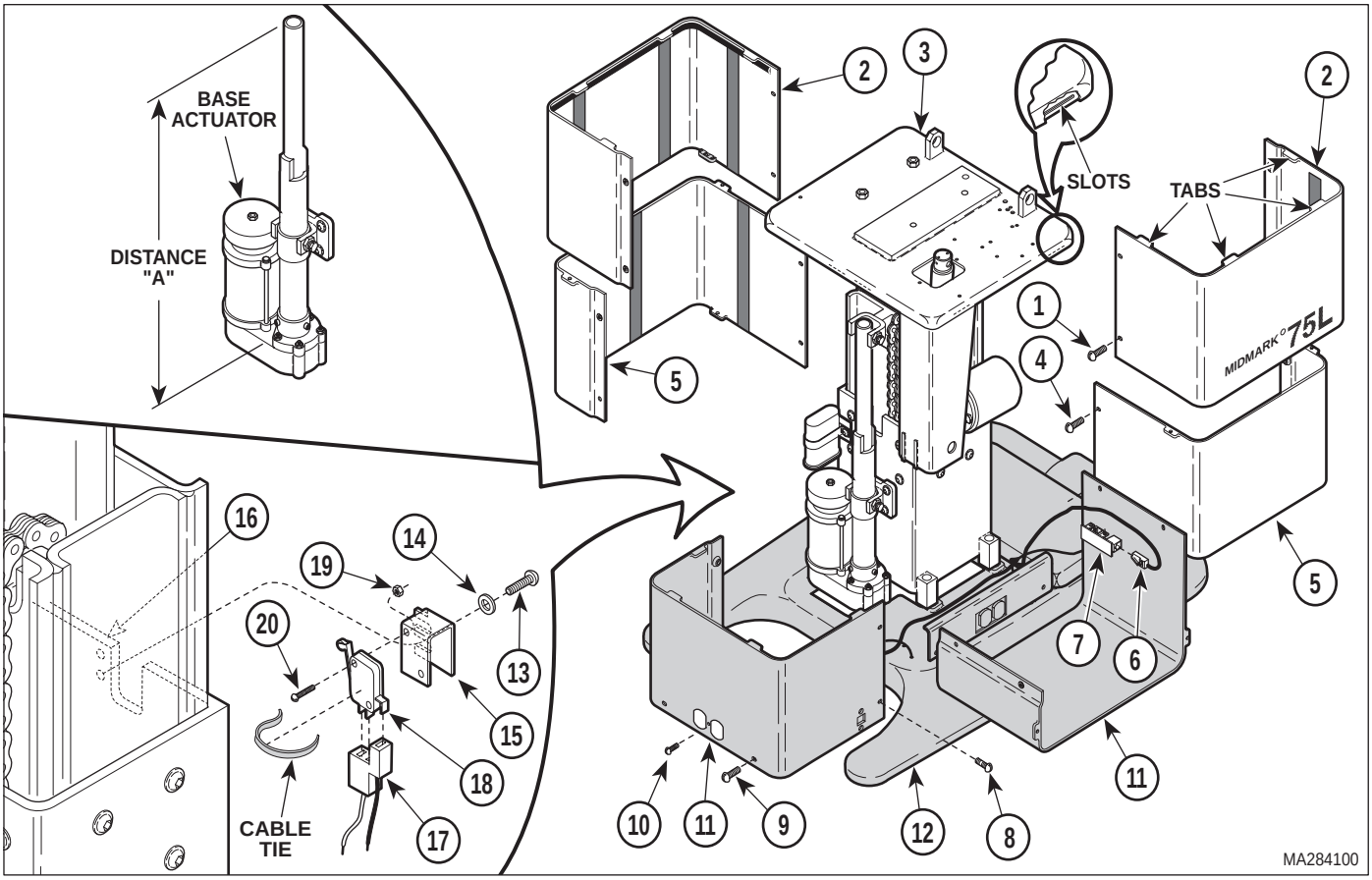

Figure 4-22. Base Up Limit Switch Removal / Installation / Adjustment

CAUTION
Distance A should be 21.48 to 21.55 in. (54.5 to 54.7 cm). Damage will occur to base actuator if Distance A is greater than 21.55 (54.7 cm). The base actuator does not free wheel. Running the base actuator to its limit will damage the base actuator.

(8) Measure Distance A on base actuator.

(9) If Distance A is between 21.48 to 21.55 in. (54.5 to 54.7 cm), go to step 13.
If Distance A is not between 21.48 to 21.55 in. (54.5 to 54.7 cm), go to step 10.

(10) Lower TABLE DOWN function approximately 3 in. (7.6 cm).

NOTE
Moving base up limit switch upward / outward will increase Distance A. Moving base down limit switch inward / downward will decrease Distance A.

(11) Loosen two screws (13); then adjust switch bracket (15) upward / outward or downward / inward as determined necessary in step 9. Tighten two screws (13).

(12) Repeat steps 7 thru 11 until Distance A is between 21.48 to 21.55 in. (54.5 to 54.7 cm). when base actuator is fully extended (stopped by base up limit switch).

(13) Install R.H. and L.H. inner shrouds (11) on base casting (12) and secure with two screws (10), four screws (9), and four screws (8).

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(14) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (11) with four screws (4).

(15) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

C. Adjustment Only

(1) If not already done, perform steps 1 thru 5 of para 4.16A.

(2) Perform steps 6 thru 15 of para 4.16B.

4.17 Pan Safety Limit Switch Removal / Installation / Adjustment

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove upholstered seat (1, Figure 4-23) from seat board assembly (2).

(3) Remove four screws (3) and seat board assembly (2) from seat weldment (4).

(4) Run FOOT DOWN function all the way down.

(5) Pull pan slide assembly out.

(6) Disconnect wire harness (5) from pan safety limit switch (6).

(7) Remove two screws (7), cable clamp (8), and pan switch bracket (9) from seat weldment (4).

NOTE
Note the approximate position of the pan safety limit switch (6) on pan switch bracket (9) for installation.

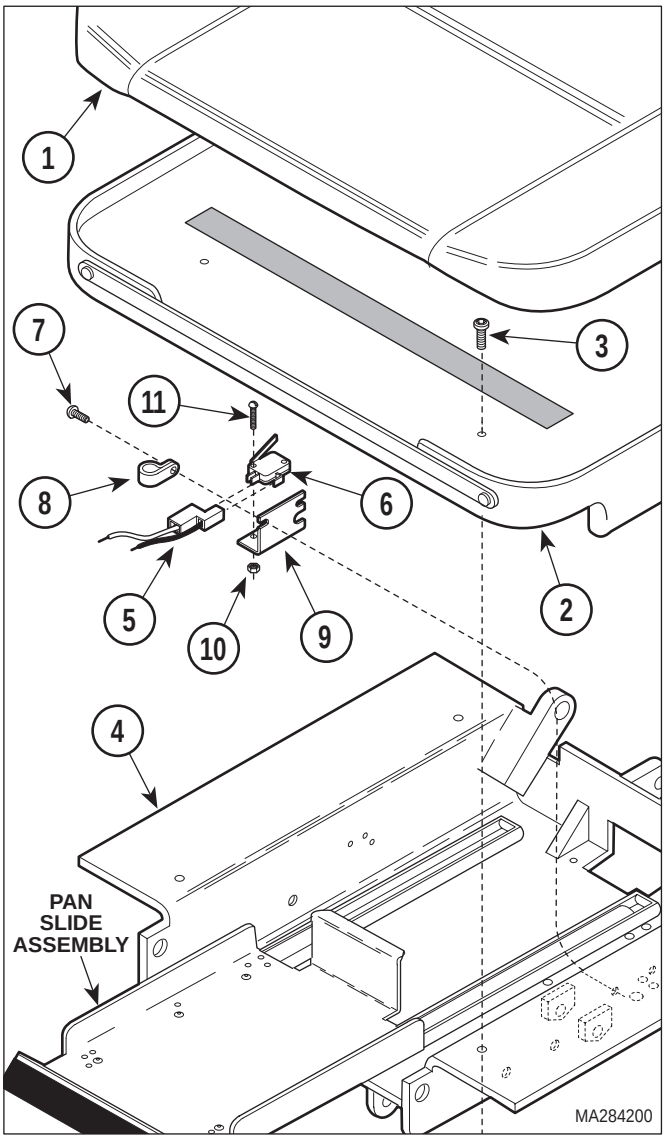

Figure 4-23. Pan Safety Limit Switch Removal / Installation / Adjustment

(8) Remove two nuts (10), screws (11), and pan safety limit switch (6) from pan switch bracket (9).

B. Installation

(1) Install pan safety limit switch (6) on pan switch bracket (9) and secure with two screws (11) and nuts (10).

(2) Install assembled pan switch bracket (9) and cable clamp (8) on seat weldment (4) and secure with two screws (7).

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(3) Push pan slide assembly all the way in while observing. If pan safety limit switch (6) *is* properly tripped by pan slide assembly when pan slide assembly is in stowed position, go to step 6. If pan safety limit switch (6) *is not* properly tripped by pan slide assembly when pan slide assembly is in stowed position, go to step 4.

(4) Loosen two nuts (10); then slide pan safety limit switch (6) as determined necessary in step 3. Tighten two nuts (10).

(5) Repeat steps 3 and 4 until pan safety limit switch (6) is adjusted properly.

(6) Connect wire harness (5) to pan safety limit switch (6).

(7) Push pan slide assembly all the way in.

(8) Coat threads of four screws (3) with removable threadlocking adhesive (Loctite 242).

(9) Install seat board assembly (2) on seat weldment (4) and secure with four screws (3).

(10) Install upholstered seat (1) on seat board assembly (2).

(11) Plug table power cord into wall outlet.

C. Adjustment Only

(1) If not already done, perform steps 1 thru 6 of para 4.17A.

(2) Perform steps 3 thru 11 of para 4.17B.

4.18 Chain Tension Check / Adjustment

A. Tension Check / Adjustment

(1) Raise TABLE UP function all the way up.

(2) Operate table top until it is in a horizontal position.

(3) Place supports under foot section and back section of table top. Lower TABLE DOWN function slightly until weight of table top is resting on supports.

(4) Unplug table power cord from wall outlet.

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(5) Remove four screws (1, Figure 4-24) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(6) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(7) Measure slack in chain (6) at a point 1 3/4 to 2 1/4 in. (4.4 to 5.7 cm) above top of outer slide weldment (7).

(8) If slack in chain *is* between 1/16 to 3/16 in. (1.6 to 4.8 mm), go to step 18.
If slack in chain (6) *is not* between 1/16 to 3/16 in. (1.6 to 4.8 mm), go to step 8.

(9) Disconnect modular cords (8) from inlet PC boards (9).

(10) Remove four screws (10), four screws (11), two screws (12), and partially remove R.H. and L.H. inner shrouds (13) from base casting (14).

(11) Loosen locking screw (15).

(12) Loosen jam nut (16).

(13) Tighten adjusting nut (17) until slack in chain (6) is between 1/16 to 3/16 in. (1.6 to 4.8 mm).

(14) Repeat entire procedure to ensure correct adjustment.

(15) Coat threads of jam nut (16) with permanent threadlocking adhesive (Loctite 262).

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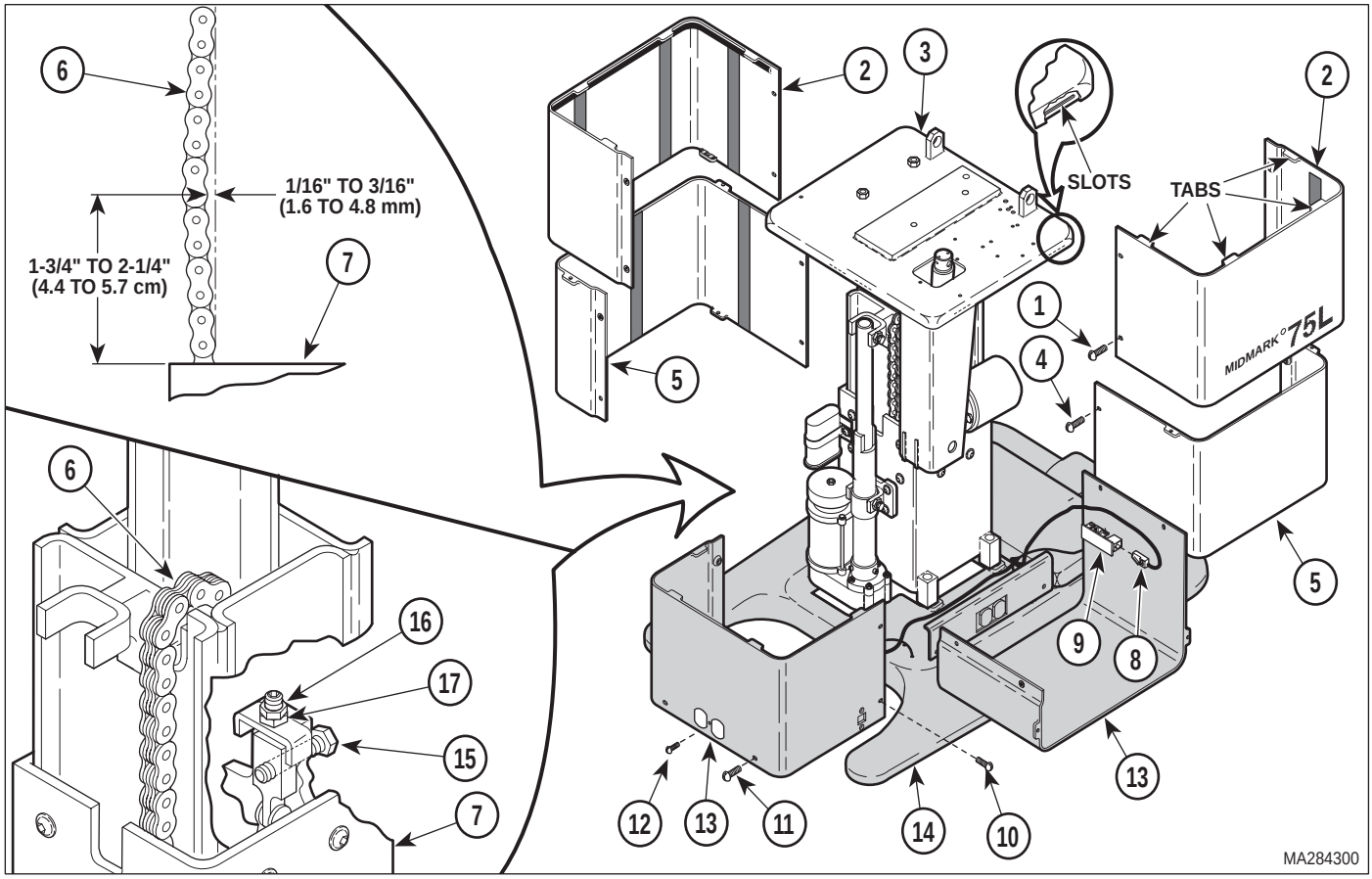

Figure 4-24. Chain Tension Check / Adjustment

(16) Tighten jam nut (16).

(17) Tighten locking screw (15).

(18) Connect modular cords (8) to inlet PC boards (9).

(19) Install R.H. and L.H. inner shrouds (13) on base casting (14) and secure with two screws (12), four screws (11), and four screws (10).

(20) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (13) with four screws (4).

(21) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

4.19 Eccentric Bearings Adjustment

A. Adjustment

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

(2) Remove four screws (1, Figure 4-25) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

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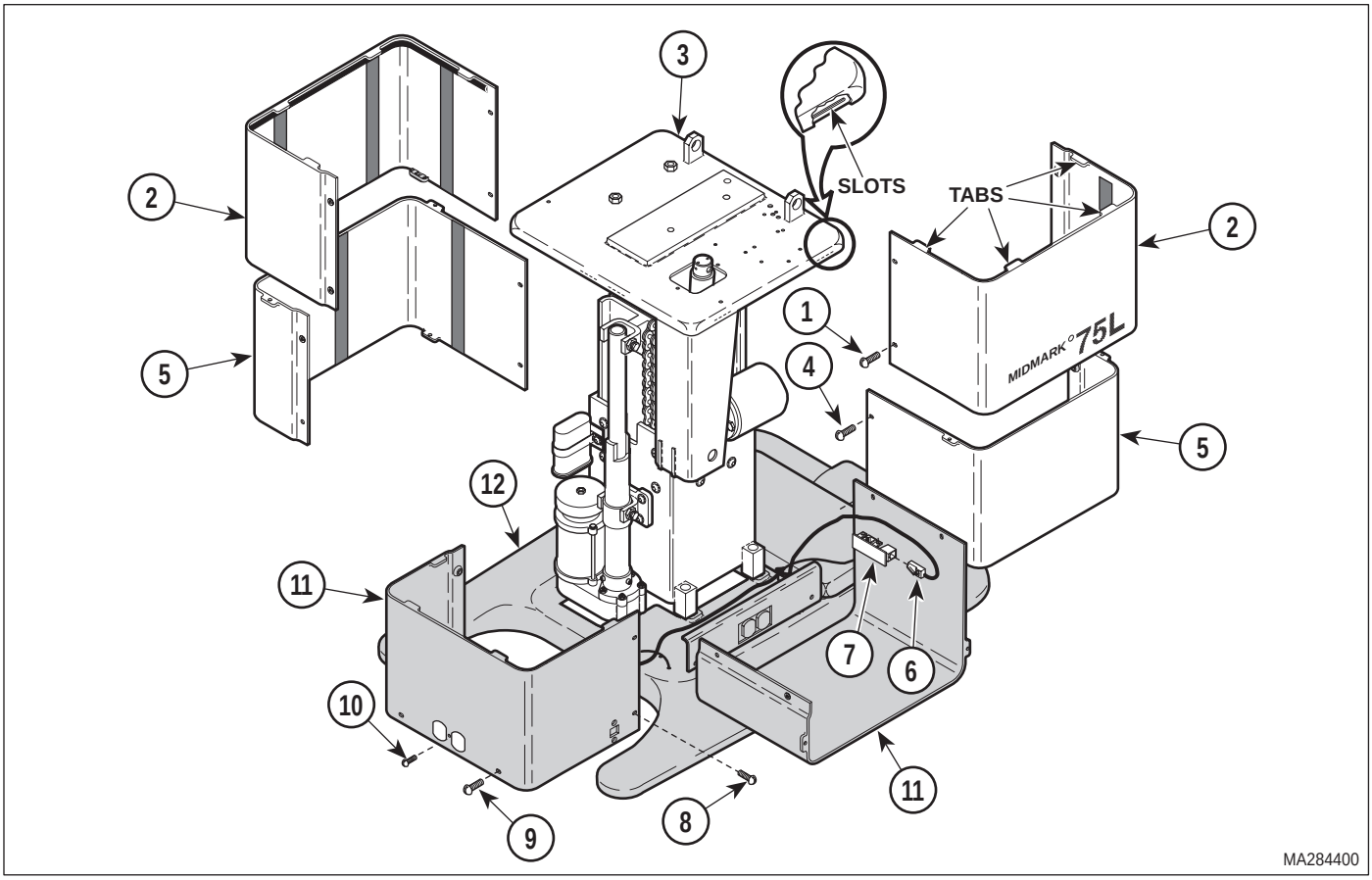

Figure 4-25. Eccentric Bearing Access

(3) Remove four screws (4) and R.H. and L.H. middle shrouds (5).

(4) Disconnect modular cords (6) from inlet PC boards (7).

(5) Remove four screws (8), four screws (9), two screws (10), and partially remove R.H. and L.H. inner shrouds (11) from base casting (12).

(6) Run TABLE UP and TABLE DOWN function while observing all eccentric bearings (1, Figure 4-26).

NOTE
The eccentric bearings are divided into four groups for purposes of adjustment. Only one group of bearings can be adjusted at one time.

(7) Note which eccentric bearings (1) do not rotate during entire movement of column assembly; these are the bearings which need adjusted.

(8) Determine what letter group the eccentric bearing you need to adjust is in; Group A, Group B, Group C, or Group D.

(9) Install $^{5}/_{16}$ - 18 x 1-$^{1}/_{4}$ Bolt(s) in the Tension hole(s) which matches the letter group of eccentric bearing being adjusted; for Group A, bolt is installed in Tension Hole A, for Group B, bolt is installed in Tension Hole B, for Group C, bolts are installed in Tension Holes C, for Group D, bolts are installed in Tension Holes D. Refer to Table 1-2 for special tool.

(10) Tighten $^{5}/_{16}$ - 18 x 1-$^{1}/_{4}$ Bolt(s) until tension is relieved from the eccentric bearing (1) being adjusted.

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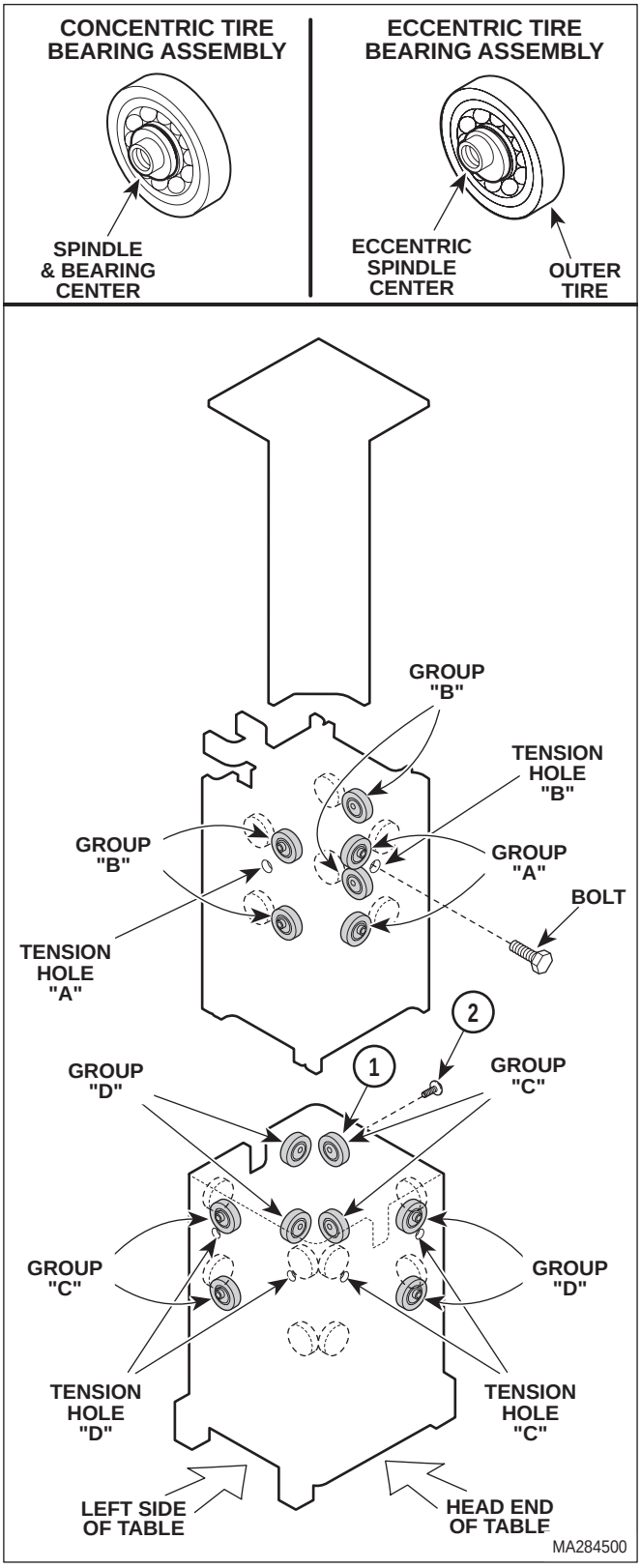

Figure 4-26. Eccentric Bearings Adjustment

(11) Loosen screw (2).

(12) Rotate outer tire of eccentric bearing (1) in a clockwise direction (as viewed from outside of column) until eccentric bearing becomes harder / or impossible to rotate (meaning the eccentric spindle in the eccentric bearing is forcing the outer tire against the column weldment rail as desired). Secure eccentric bearing in this position by tightening screw (2) to 17 to 20 ft-lbs. (23 to 27.1 N•m).

(13) Remove $^{5}/_{16}$ - 18 x 1-$^{1}/_{4}$ Bolt(s) from Tension hole.

(14) Repeat step 6 thru 13 until all eccentric bearings are properly adjusted.

(15) Connect modular cords (6, Figure 4-26) to inlet PC boards (7).

(16) Install R.H. and L.H. inner shrouds (11) on base casting (12) and secure with two screws (10), four screws (9), and four screws (8).

(17) Assemble R.H. and L.H. middle shrouds (5) around inner shrouds (11) with four screws (4).

(18) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (5) is captured by R.H. and L.H. outer shrouds (2).

4.20 Hand / Foot Inlet PC Board Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the wall outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from wall outlet.

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(2) Remove four screws (1, Figure 4-27) and R.H. and L.H. outer shrouds (2) from column adapter weldment (3).

(3) Lower middle outer shroud assembly (4) down out of way.

(4) Unplug modular cord (5) from port of inlet PC board (6).

(5) Remove screw (7), wire (8), and starwasher (9) from base casting (10).

(6) Remove two screws (11), inlet PC board (6), and spacers (12) from inner shroud (13).

B. Installation

(1) Install two spacers (12) and inlet PC board (6) on inner shroud (13) and secure with two screws (11).

(2) Connect wire (8) to base casting (10) with starwasher (9) and screw (7).

(3) Plug modular cord (5) into port of inlet PC board (6).

(4) Install tabs of R.H. and L.H. outer shrouds (2) in slots column adapter weldment (3) and secure with four screws (1), making sure middle outer shroud assembly (4) is captured by R.H. and L.H. outer shrouds (2).

4.21 Hand Control Panel Removal / Installation

A. Removal

(1) Disconnect coil cord (1, Figure 4-28) from hand control panel (2).

(2) Remove two screws (3) and bottom end cap (4) from hand control tube (5).

(3) Remove hand control panel (2) from hand control tube (5).

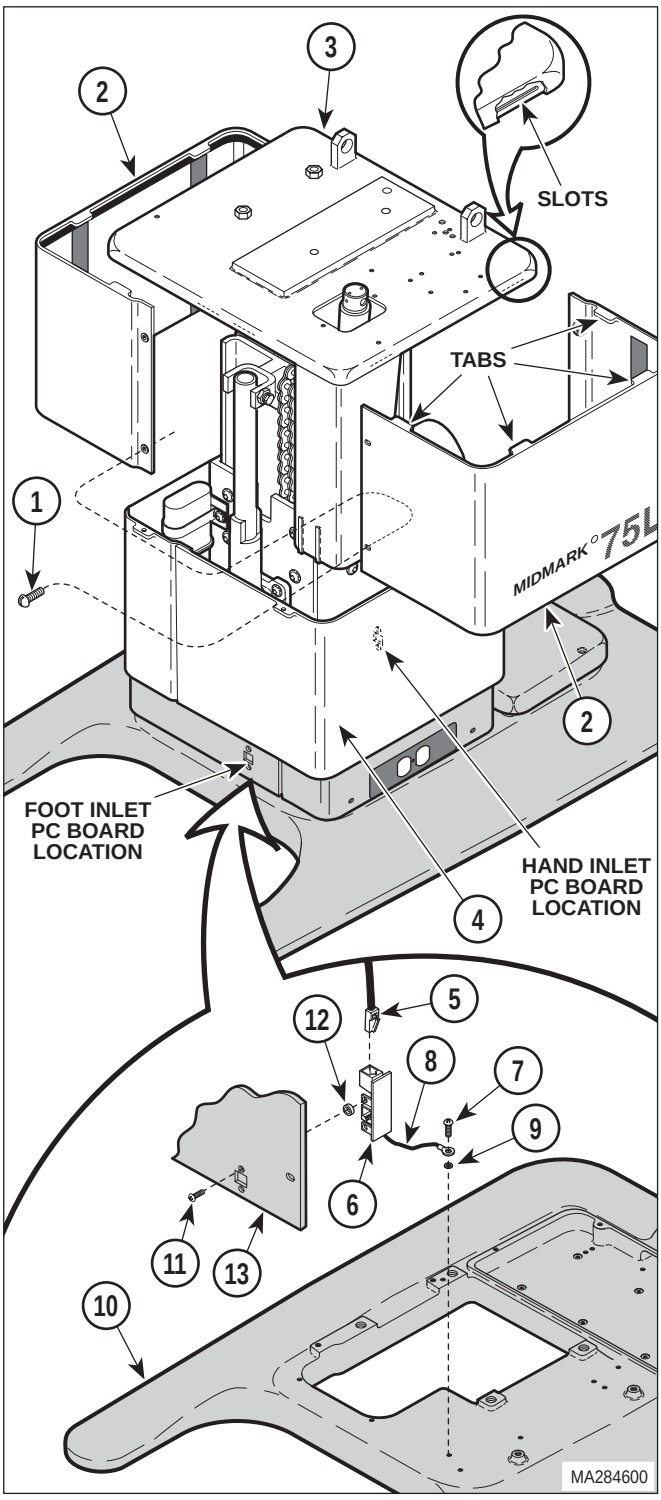

Figure 4-27. Inlet PC Board Removal / Installation

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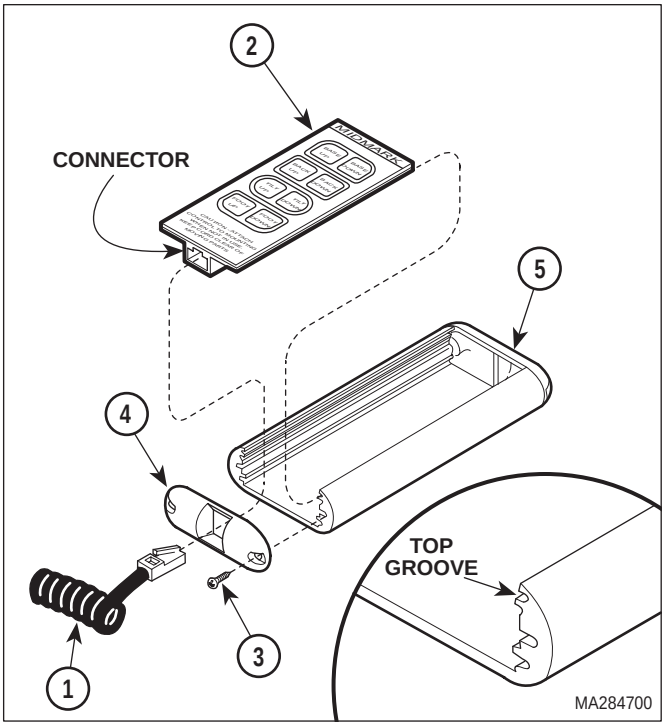

Figure 4-28. Hand Control Panel Removal / Installation

B. Installation

(1) Slide hand control panel (2) into top groove of hand control tube (5).

(2) Install bottom end cap (4) on hand control tube (5) and secure with two screws (3).

(3) Connect coil cord (1) to hand control panel (2).

4.22 Foot Control Interface Board Removal / Installation

A. Removal

(1) Remove two screws (1, Figure 4-29) and partially separate foot switch bracket (2) from foot control casting (3).

(2) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

(3) Remove two screws (7), lockwashers (8), and partially separate interface board (9) from foot switch bracket (2).

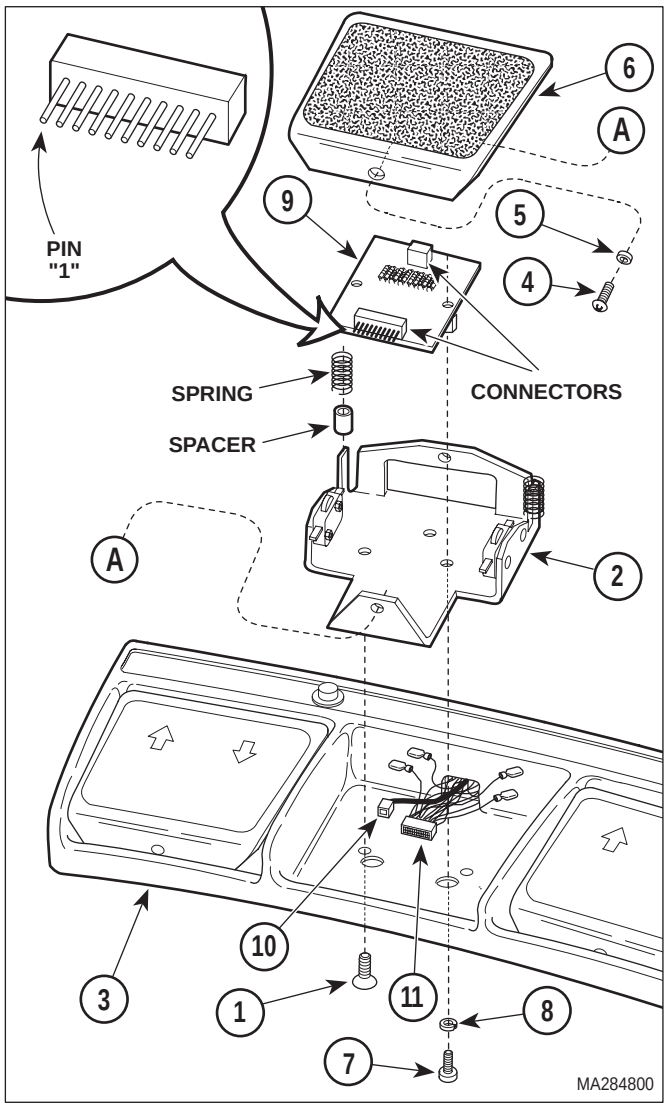

Figure 4-29. Foot Control Interface Board Removal / Installation

(4) Disconnect modular cord (10) and wire harness (11) from connectors of interface board (9).

B. Installation

CAUTION
When connecting wire harness (11) to interface board, make sure pin "1" of connector is not used. This terminal should still be visible after wire harness is connected. Failure to do so will result in foot control malfunction.

(1) Connect wire harness (11) and modular cord (10) to connectors of interface board (9).

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(2) Install interface board (9) on standoffs and secure with two lockwashers (8) and screws (7).

(3) Ensure springs and spacers are in position and have not fallen off.

(4) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4) making sure pedal is mounted on pivot spacer.

(5) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

4.23 Typical Foot Pedal Foot Switch Removal / Installation

A. Removal

(1) Remove two screws (1, Figure 4-30) and partially separate foot switch bracket (2) from foot control casting (3).

(2) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

(3) Tag and disconnect two wires (7) from terminals of foot switch (8).

(4) Remove two nuts (9), lockwashers (10), screws (11), and foot switch (8) from foot switch bracket (2).

B. Installation

(1) Install foot switch (8) on foot switch bracket (2) and secure with two screws (11), lockwashers (10), and two nuts (9).

(2) Connect two wires (7) to terminals of foot switch (8).

(3) Ensure springs and spacers are in position and have not fallen off.

(4) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4) making sure pedal is mounted on pivot spacer.

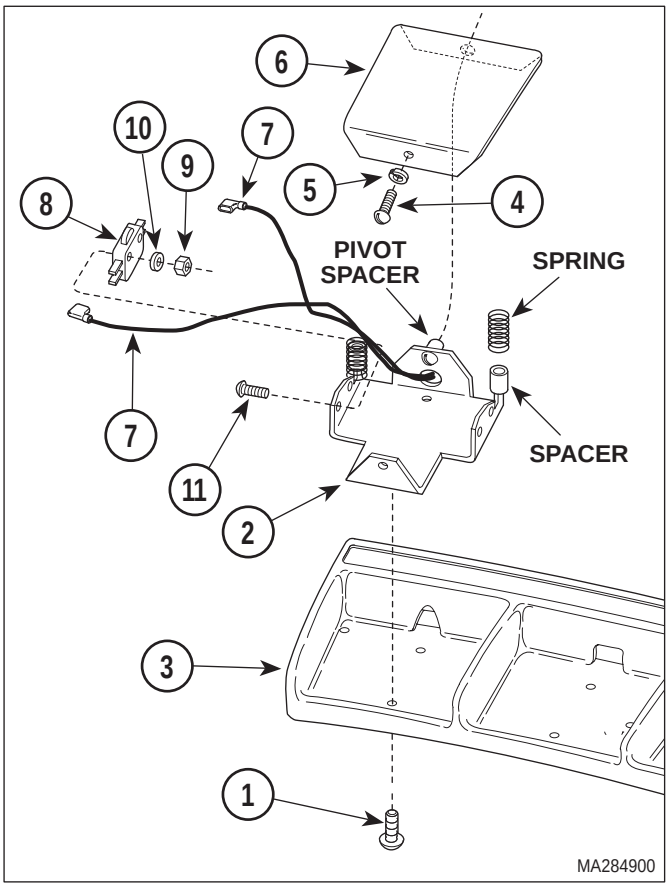

Figure 4-30. Foot Pedal Foot Switch Removal / Installation

(5) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

4.24 Headrest Adjustment

A. Adjustment

(1) Unlock upper lock handle (See Figure 4-31).

(2) Loosen setscrew (1, Figure 4-31).

(3) Tighten adjusting screw (2) slightly; then lock upper lock handle. Repeat this step until Axis A and B have the strongest possible holding power, but operation of upper lock handle is not too difficult.

(4) Tighten setscrew (1).

(5) Unlock lower lock handle.

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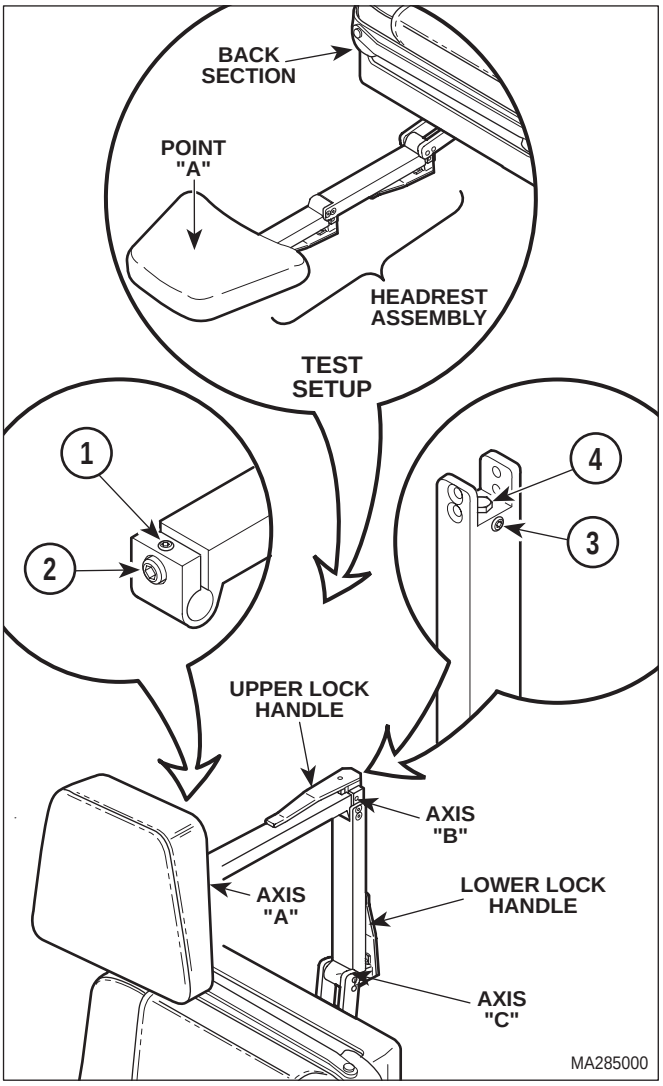

Figure 4-31. Headrest Adjustment

(6) Loosen setscrew (3).

(7) Tighten adjusting screw (4) slightly; then lock lower lock handle. Repeat this step until Axis C has the strongest possible holding power, but operation of lower lock handle is not too difficult.

(8) Tighten setscrew (3).

(9) Lower BACK DOWN function all the way down.

NOTE
The maximum force required to unclamp a locking handle should be 17 lbs. (7.7 kg) and the maximum force required to clamp a locking handle should be 35 lbs. (15.8 kg).

(10) Position headrest assembly as shown in TEST SETUP.

(11) Place a 45 lb. (20.4 kg) weight on headrest assembly at Point A.

DANGER
Failure to adjust headrest assembly to specifications could result in a failure during a procedure. This could cause severe personal injury to a patient or the need to terminate the procedure.

(12) Observe. The headrest assembly should support the test weight without drifting downward. If not, repeat entire adjustment procedure. If headrest assembly does not meet test standards, do not use headrest assembly.

4.25 Headrest Handles Handle Stops Adjustment

A. Adjustment

(1) Loosen nut (1, Figure 4-32).

(2) Push on upper lock handle until it reaches a point where the upper lock handle wants to lock itself by going over center; then allow upper lock handle to go over center a few degrees. Hold the upper lock handle in this position and adjust stop screw (2) so the upper lock handle will be forced to stop in this position each time it is locked.

(3) Tighten nut (1).

(4) Loosen nut (3).

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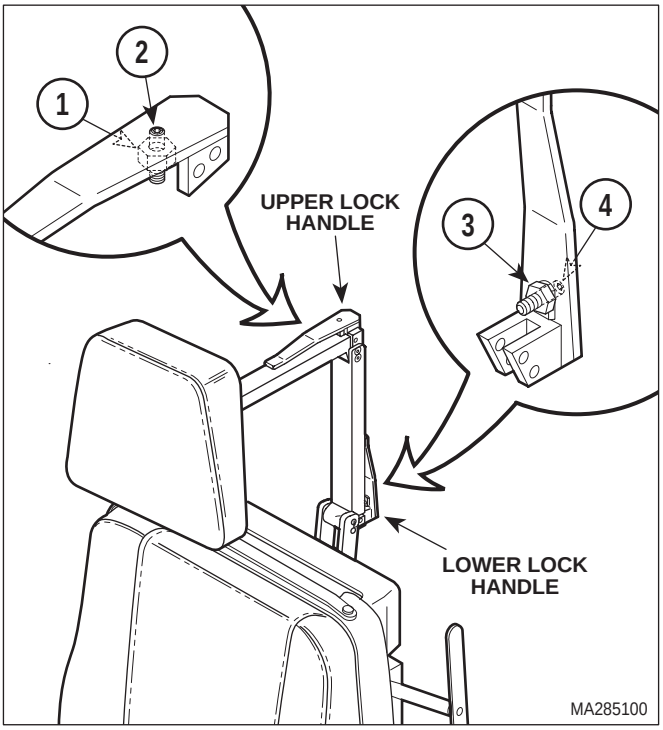

Figure 4-32. Headrest Handles Handle Stops Adjustment

(5) Push on lower lock handle until it reaches a point where the lower lock handle wants to lock itself by going over center; then allow lower lock handle to go over center a few degrees. Hold the lower lock handle in this position and adjust stop screw (4) so the lower lock handle will be forced to stop in this position each time it is locked.

(6) Tighten nut (3).

4.26 Stirrup Assembly Removal / Installation

A. Adjustment

(1) Insert screwdriver in access hole and remove screw (1, Figure 4-33) from stirrup assembly (2).

(2) Pull stirrup assembly (2) out of pivot boss (3).

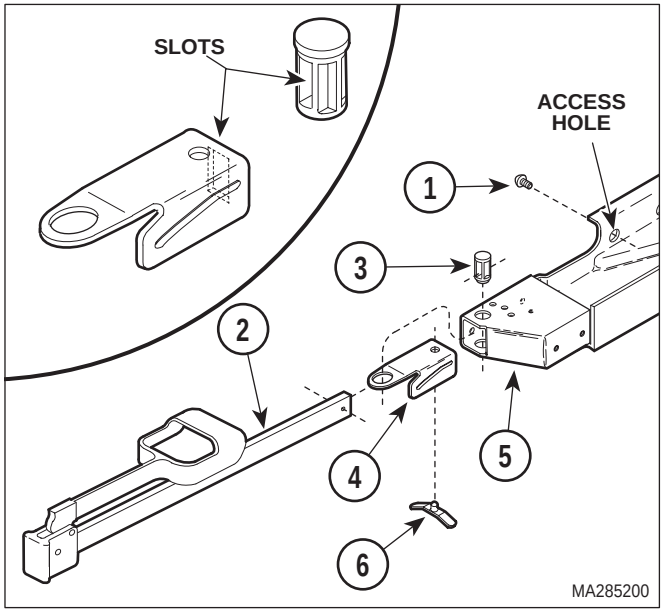

Figure 4-33. Stirrup Assembly Removal / Installation

NOTE
Stirrup guide bracket (4) is too wide to removed thru front side; it must be removed out back side.

(3) Remove pivot boss (3) and stirrup guide bracket (4) from stirrup mount weldment (5).

(4) If damaged, remove stirrup index spring (6) from stirrup guide bracket (4).

B. Installation

(1) If removed, install stirrup index spring (6) on stirrup guide bracket (4).

(2) Install stirrup guide bracket (4) in stirrup mount weldment (5) and secure with pivot boss (3).

(3) Slide stirrup assembly (2) thru slot in pivot boss (3) and thru slot in stirrup guide bracket (4).

(4) Install screw (1) on stirrup assembly (2).

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SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Electrical Schematics / Wiring Diagrams

Figures 5-1 and 5-2 illustrate the logic/current flow and wiring connections between the electrical components in the table.

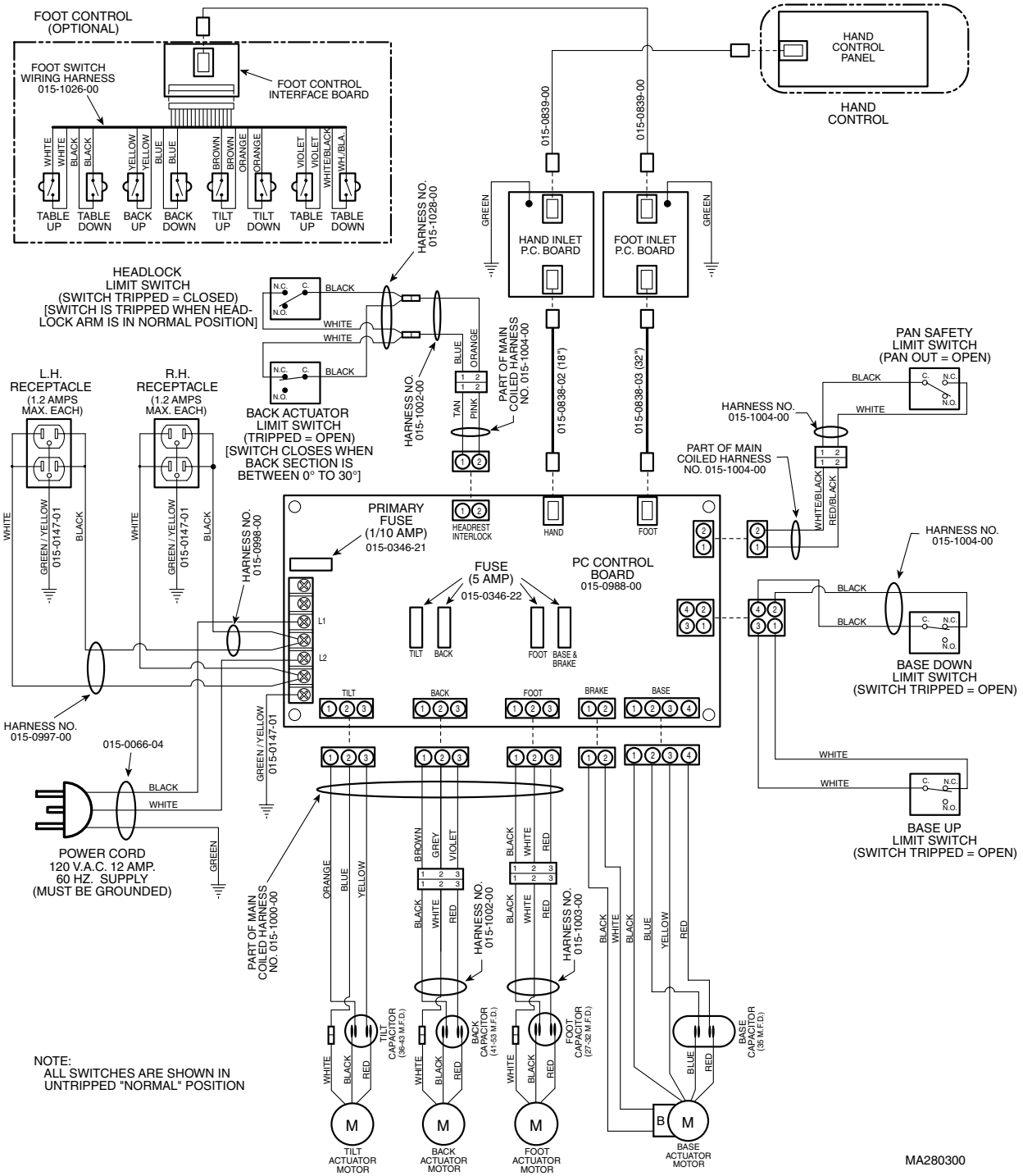

Figure 5-1. Wiring Diagram (Used on 115 VAC Units With Serial Numbers FA-1000 Thru Present)

SECTION V
SCHEMATICS AND DIAGRAMS

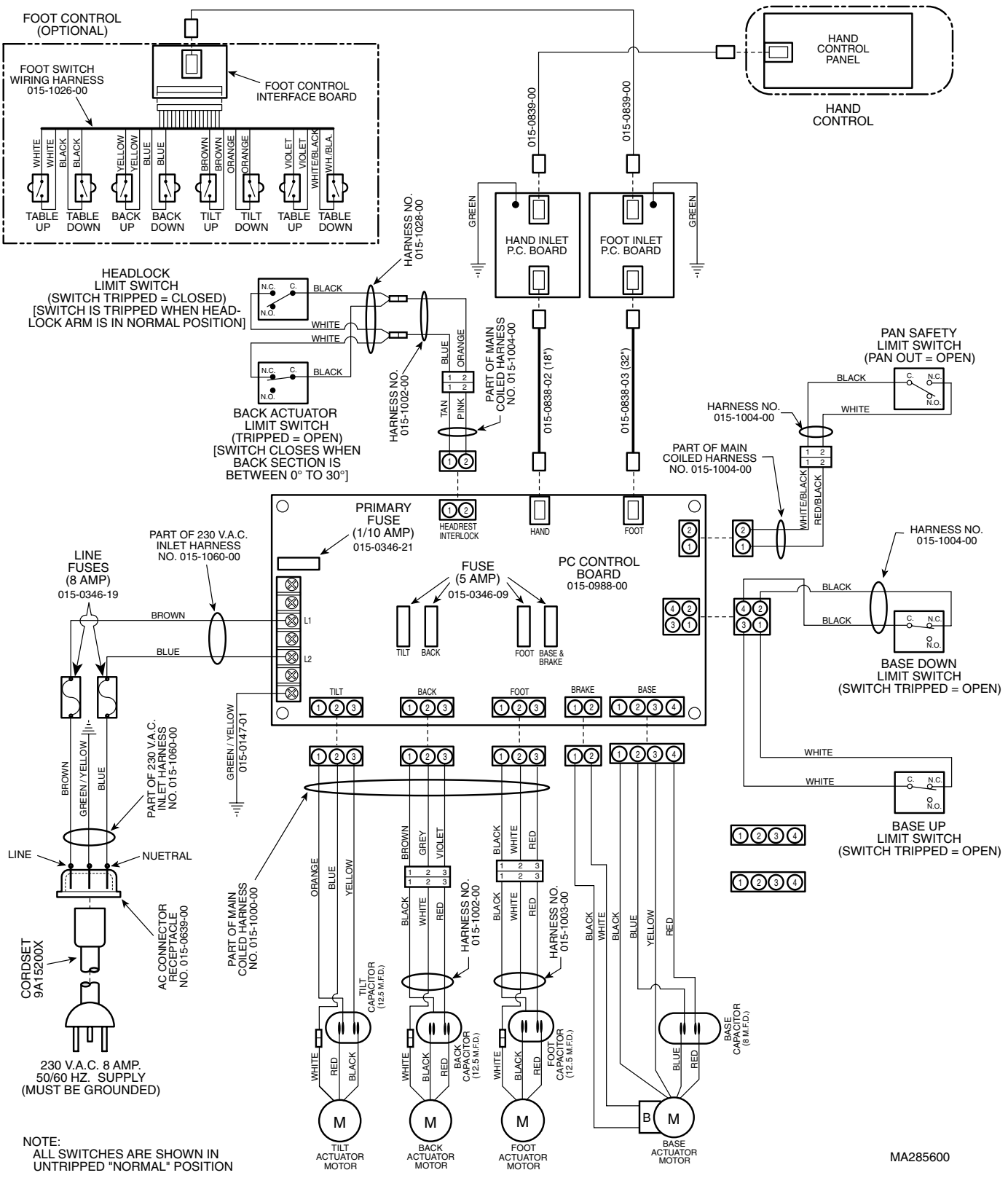

Figure 5-2. Wiring Diagram (Used on 230 VAC Units With Serial Numbers FB-1000 Thru Present)

SECTION VI
PARTS LIST

6.1 Introduction

The illustrated parts list provides information for identifying and ordering the parts necessary to maintain the unit in peak operating condition. Refer to paragraph 1.5 for parts ordering information.

The parts list also illustrates disassembly and assembly relationships of parts.

6.2 Description of Columns

The *Item* column of the parts list gives a component its own unique number. The same number is given to the component in the parts illustration. This allows a part number of a component to be found if the technician can visually spot the part on the illustration. The technician simply finds the component in question on the illustration and notes the item number of that component. Then, he finds that item number in the parts list. The row corresponding to the item number gives the technician the part number, a description of the component, and quantity of parts per subassembly. Also, if a part number is known, the location of that component can be determined by looking for the item number of the component on the illustration.

The *Part No.* column lists the MIDMARK part number for that component.

The *Description* column provides a physical description of the component.

The *Qty.* column lists the number of units of a particular component that is required for the subassembly. The letters “AR” denote “as required” when quantities of a particular component cannot be determined, such as: adhesive.

Bullets { • } in the *Part No.* column and the *Description* column show the indenture level of a component. If a component does not have a bullet, it is a main component of that illustration. If a component has a bullet, it is a subcomponent of the next component listed higher in the parts list than itself that does not have a bullet. Likewise, if a component has two bullets, it is a subcomponent of the next component listed higher in the parts list than itself that has only one bullet.

6.3 Torque Specifications and Important Assembly Notes

When specific assembly torque specifications, measurements, or procedures have been identified, by our engineering department, as required to assure proper function of the unit, those torque specifications measurements, and procedures will be noted on the parts illustrations. Adherence to these requirements is essential.

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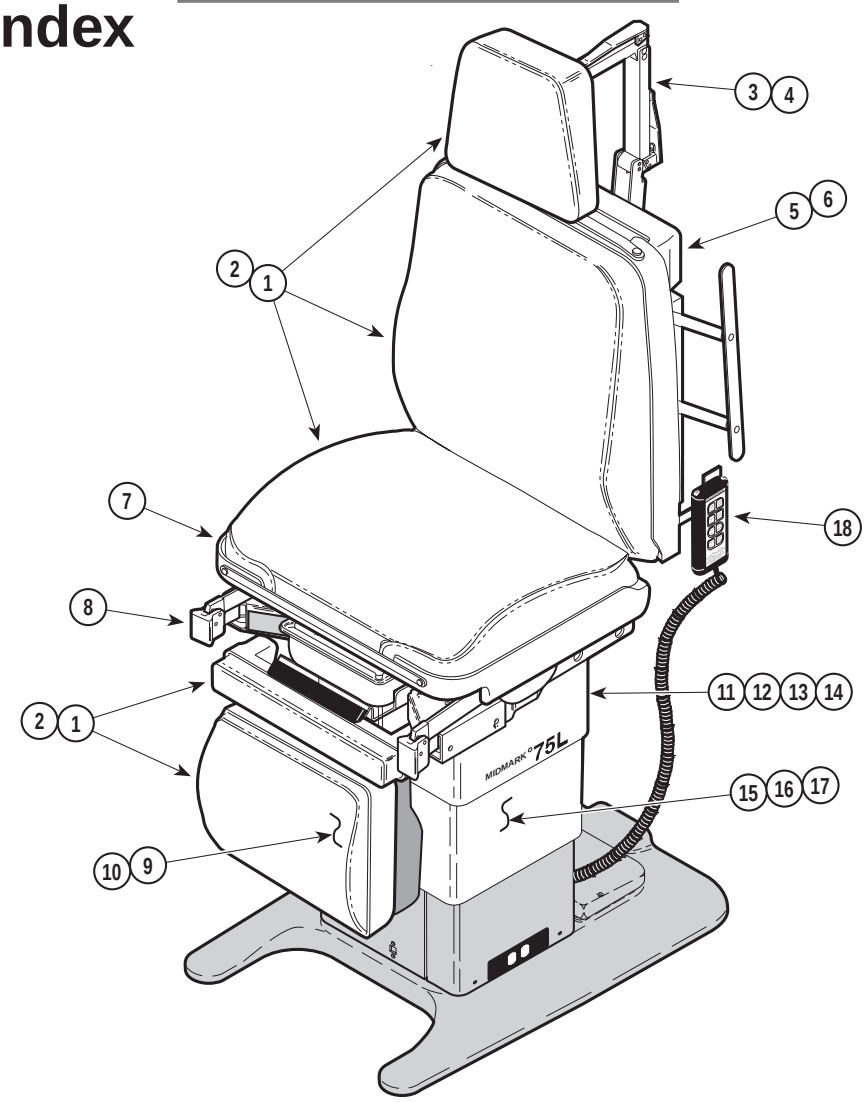
Pictorial Index



MA280500

Used on units with Serial Number FA1000 thru Present

Item	Part No.	Description	Page
	411-009	75L Power Examination Table - Domestic (1995/1996 Promo [115 VAC])	6-2
1		• Upholstery Set-Styled (Standard)	6-3
2		• Upholstery Set-Plain (Optional)	6-4
3		• Head Rest Components	6-5
4		• • Two Arm Headlock Assembly	6-6
5		• Back Components	6-7
6		• • Back Actuator Assembly	6-8
7		• Seat Components	6-9
8		• Stirrup Assembly	6-10
9		• Leg Components	6-11
10		• • Foot Actuator Assembly	6-12
11		• Base Cover Components	6-13
12		• Base Electrical Comp. - Domestic	6-14
14		• • Tilt Actuator Assembly	6-16
15		• Column Components	6-17
16		• • Column Assembly	6-18
17		• • Base Actuator	6-19
18		• Hand Control Assembly	6-20

Item	Part No.	Description	Page
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
19	9A43001	Chair Arm Set Assembly	9A43
20	9A51001	Facial Pad	9A51
21	9A77001	I.V. Pole	9A77
22	9A78001	Vision Block Screen	9A78
23	9A81001	Articulating Armboard	9A81
24	9A82001	Special Procedures Armboard	9A82
25	9A83001	Instrument Tray Assembly	9A83
26	9A147002	Knee Crutch Assembly	9A147
27	9A157001	Side Rail Assembly	9A157
28	9A203001	Foot Control Assembly	9A203
29	9A204001	Urology Accessory	9A204
30	9A205002	Base Rail Assembly (FA1000 thru FA3605)	9A205
31	9A208001	Knee Crutch Assembly	9A208
32	9A213001	Caster Base Assembly	9A213
33	9A214002	Restraint Belts	9A214
34	9A227002	Seat Rail Assembly (FA3606 thru Present)	9A227
35	9A229001	Siderail Socket Accessry	9A229
36	9A230001	Siderail Adapter Accessry	9A230

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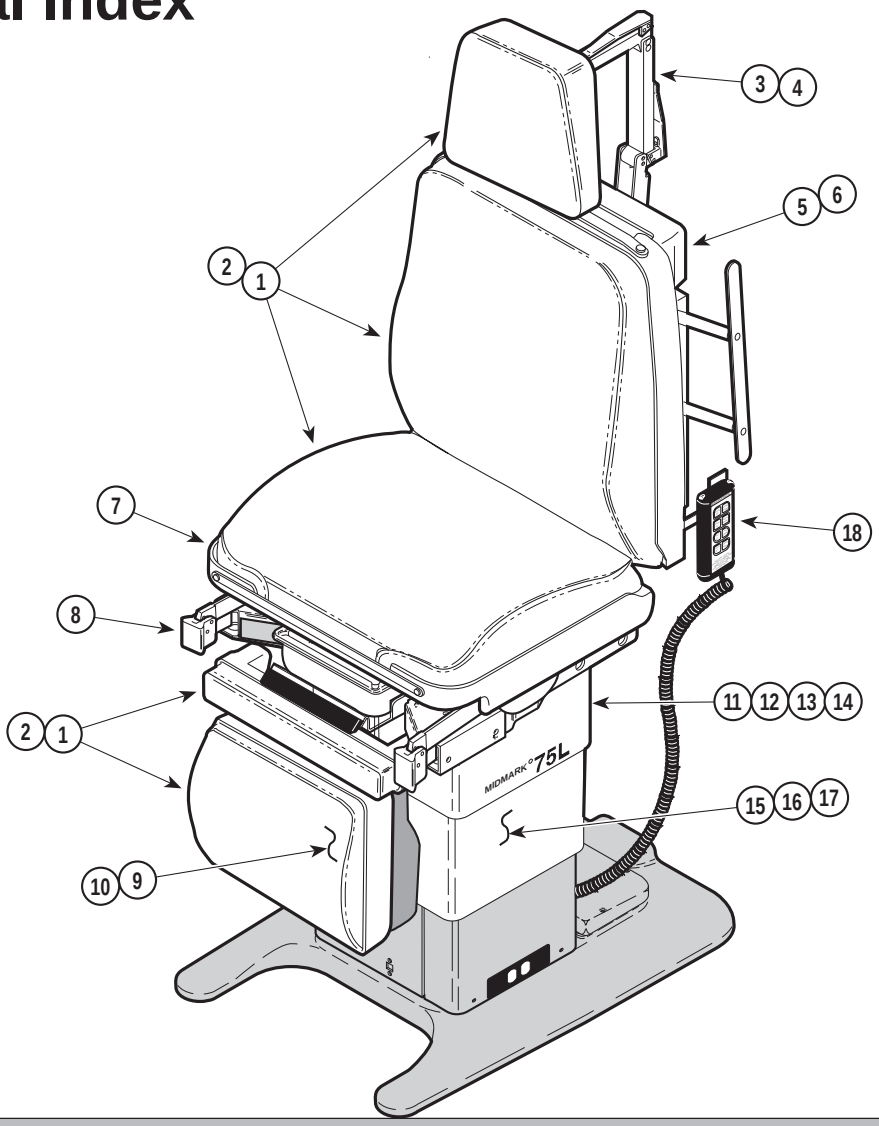
Pictorial Index



MA280500

Used on units with Serial Number FB1000 thru Present

Item	Part No.	Description	Page
	411-010	75L Power Examination Table - Export (1995/1996 Promo [230 VAC])	6-2.1
1		• Upholstery Set-Styled (Standard)	6-3
2		• Upholstery Set-Plain (Optional)	6-4
3		• Head Rest Components	6-5
4		• • Two Arm Headlock Assembly	6-6
5		• Back Components	6-7
6		• • Back Actuator Assembly	6-8
7		• Seat Components	6-9
8		• Stirrup Assembly	6-10
9		• Leg Components	6-11
10		• • Foot Actuator Assembly	6-12
11		• Base Cover Components	6-13
13		• Base Electrical Comp. - Export	6-15
14		• • Tilt Actuator Assembly	6-16
15		• Column Components	6-17
16		• • Column Assembly	6-18
17		• • Base Actuator	6-19
18		• Hand Control Assembly	6-20

Item	Part No.	Description	Page
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
19	9A43001	Chair Arm Set Assembly	9A43
20	9A51001	Facial Pad	9A51
21	9A77001	I.V. Pole	9A77
22	9A78001	Vision Block Screen	9A78
23	9A81001	Articulating Armboard	9A81
24	9A82001	Special Procedures Armboard	9A82
25	9A83001	Instrument Tray Assembly	9A83
26	9A147002	Knee Crutch Assembly	9A147
27	9A157001	Side Rail Assembly	9A157
28	9A203001	Foot Control Assembly	9A203
29	9A204001	Urology Accessory	9A204
30	9A205002	Base Rail Assembly (FB1000 thru FB1026)	9A205
31	9A208001	Knee Crutch Assembly	9A208
32	9A213001	Caster Base Assembly	9A213
33	9A214002	Restraint Belts	9A214
34	9A227002	Seat Rail Assembly (FB1027 thru Present)	9A227
35	9A229001	Siderail Socket Accessry	9A229
36	9A230001	Siderail Adapter Accessry	9A230

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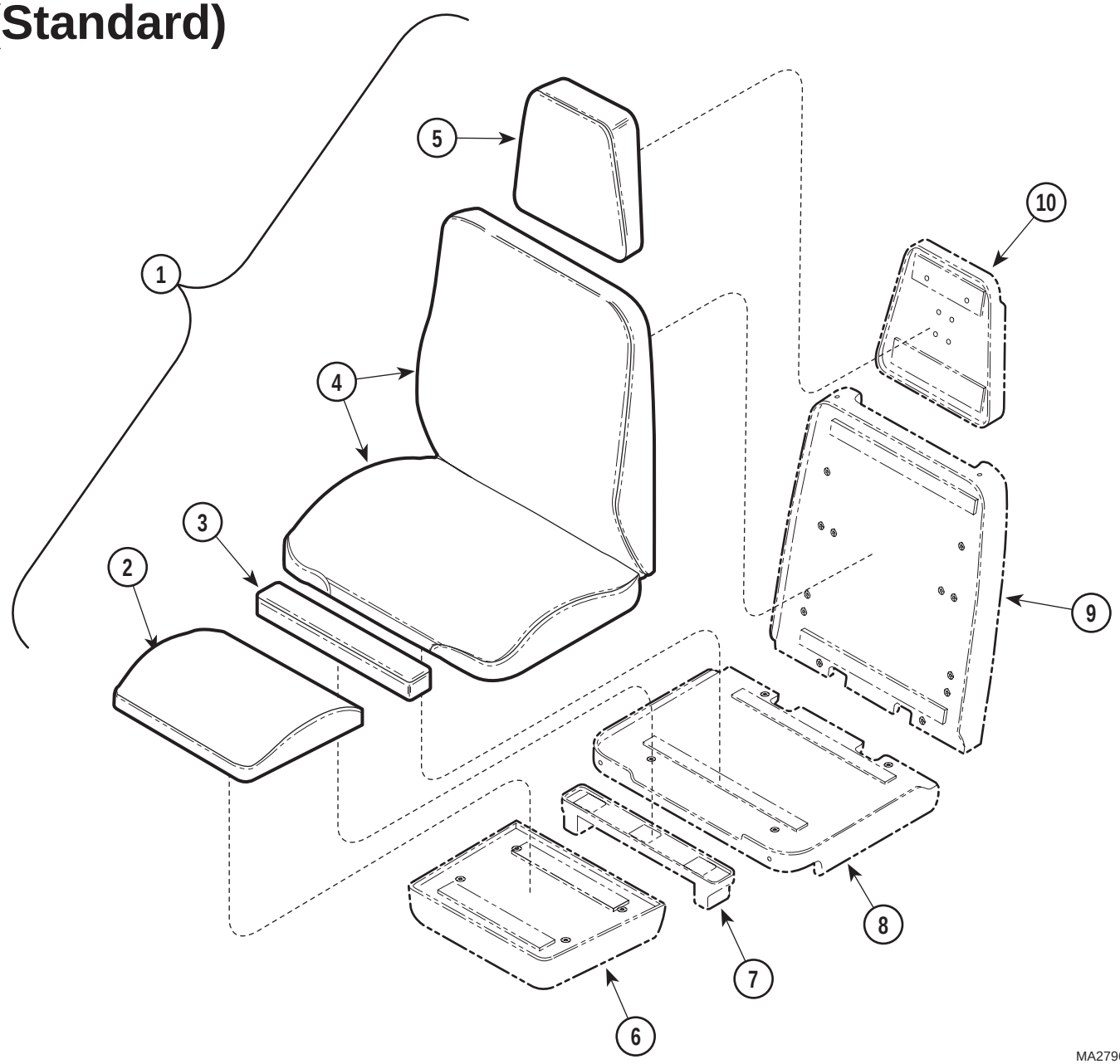
Upholstery Set - Styled (Standard)



MA279600

Item	Part No.	Description	Qty.
1	002-0486-XX	Upholstery Set - Standard (Includes Items 2 thru5) {*Specify Color}	1
2	• 028-0414-XX	Upholstered Foot Rest {*Specify Color}	1
3	• 028-0413-XX	Upholstered Leg Rest {*Specify Color}	1
4	• 028-0412-XX	Upholstered Back and Seat Rest {*Specify Color}	1
5	• 028-0411-XX	Upholstered Head Rest {*Specify Color}	1
6		Foot Board Assembly (Refer to "Leg Components" Elsewhere)	Ref
7		Leg Board Assembly (Refer to "Leg Components" Elsewhere)	Ref
8		Seat Board Assembly (Refer to "Seat Components" Elsewhere)	Ref
9		Back Board Assembly (Refer to "Back Components" Elsewhere)	Ref
10		Head Board Assembly (Refer to "Head Rest Components" Elsewhere)	Ref

Item	Part No.	Description	Qty.
	The following are current stock upholstery colors (-XX) for upholstery.		

Part No.	Upholstery Color	Qty.
XXX-XXXX-19	Truffle	AR
XXX-XXXX-41	Colonial Blue	AR
XXX-XXXX-42	Blush	AR
XXX-XXXX-62	Rich Burgandy	AR
XXX-XXXX-63	Turquoise	AR
XXX-XXXX-64	Pearl Grey	AR
XXX-XXXX-99	Special Color	AR

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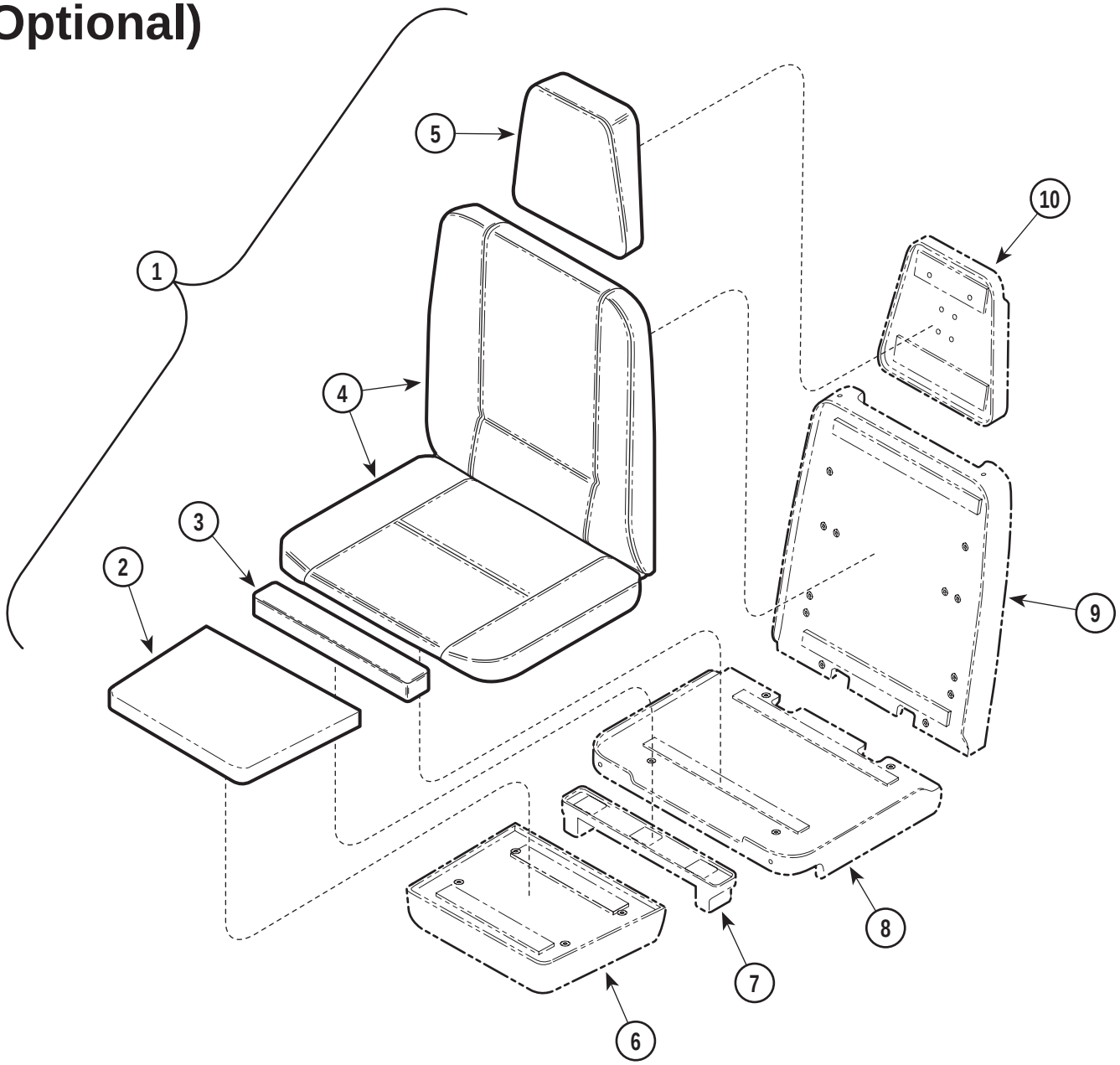
Upholstery Set - Plain (Optional)



MA279500

Item	Part No.	Description	Qty.
1	002-0485-XX	Upholstery Set - Standard (Includes Items 2 thru5) {*Specify Color}	1
2	• 028-0410-XX	Upholstered Foot Rest {*Specify Color}	1
3	• 028-0409-XX	Upholstered Leg Rest {*Specify Color}	1
4	• 028-0415-XX	Upholstered Back and Seat Rest {*Specify Color}	1
5	• 028-0424-XX	Upholstered Head Rest {*Specify Color}	1
6		Foot Board Assembly (Refer to "Leg Components" Elsewhere)	Ref
7		Leg Board Assembly (Refer to "Leg Components" Elsewhere)	Ref
8		Seat Board Assembly (Refer to "Seat Components" Elsewhere)	Ref
9		Back Board Assembly (Refer to "Back Components" Elsewhere)	Ref
10		Head Board Assembly (Refer to "Head Rest Components" Elsewhere)	Ref

The following are current stock upholstery colors (-XX) for upholstery.

Part No.	Upholstery Color	Qty.
XXX-XXXX-19	Truffle	AR
XXX-XXXX-41	Colonial Blue	AR
XXX-XXXX-42	Blush	AR
XXX-XXXX-62	Rich Burgandy	AR
XXX-XXXX-63	Turquoise	AR
XXX-XXXX-64	Pearl Grey	AR
XXX-XXXX-99	Special Color	AR

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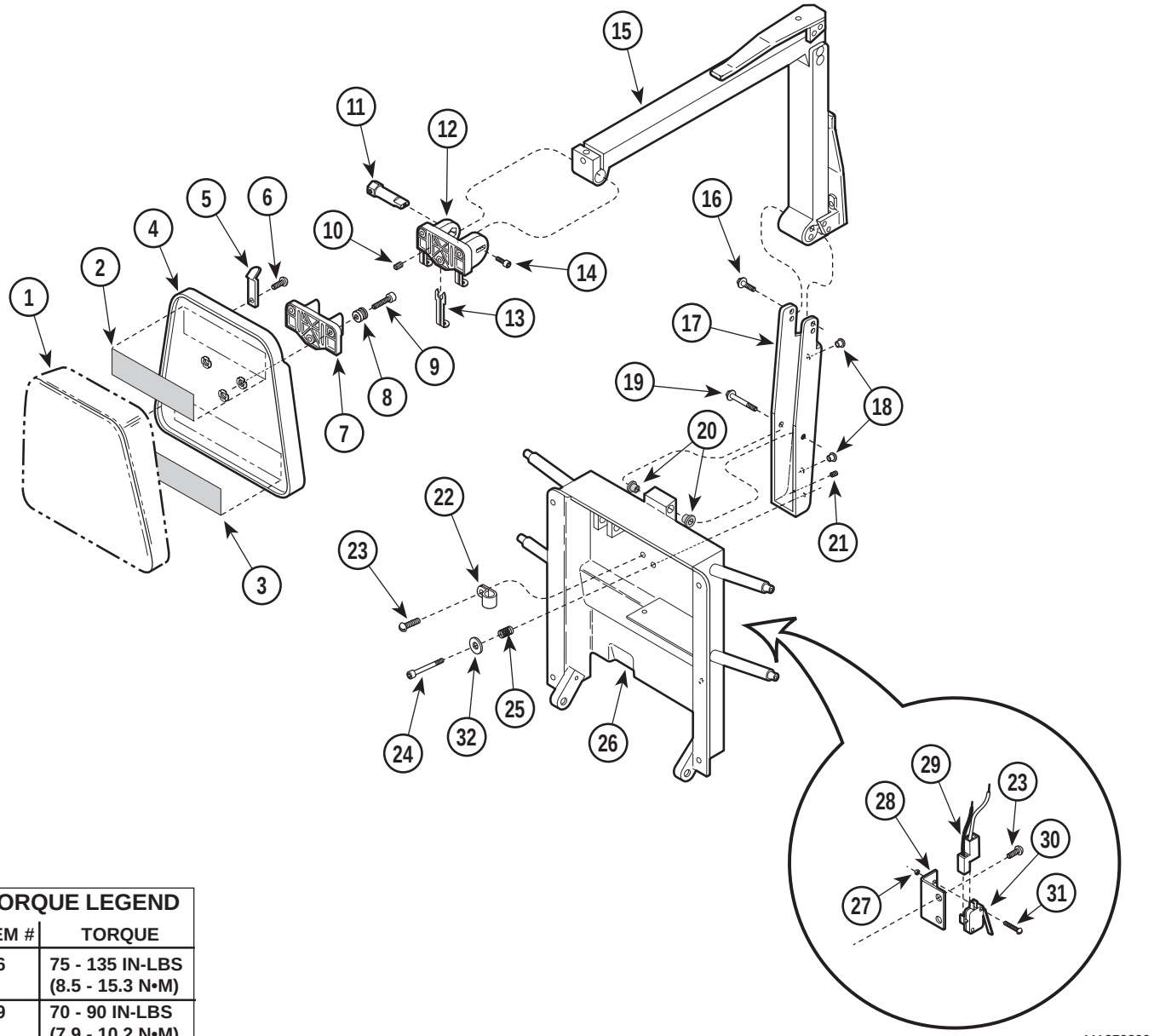
Headrest Components



TORQUE LEGEND	
ITEM #	**TORQUE**
16	**75 - 135 IN-LBS (8.5 - 15.3 N•M)**
19	**70 - 90 IN-LBS (7.9 - 10.2 N•M)**

MA279300

Item	Part No.	Description	Qty.
1		Upholstered Headboard (Refer to "Upholstery Set" Elsewhere)	Ref
2	053-0131-08	Velcro Hook Tape	1
	042-0040-00	Staples (Not Shown)	AR
3	053-0131-02	Velcro Hook Tape	1
	042-0040-00	Staples (Not Shown)	AR
4	029-1788-00	Head Board Assembly	1
5	058-0001-03	Painted Bag Clip	2
6	040-0006-00	Screw	2
7	053-0582-00	Headboard Pillow Mount	1
8	042-0137-00	Upholstery Mount Stud	3
9	040-0010-13	Screw	3
10	040-0250-26	Set Screw (Apply Loctite 042-0025-00)	1
11	057-0375-00	Headboard Pivot Pin	1
12	053-0581-00	Headboard Pivot Mount	1
13	016-0542-01	Slide Bar	3
14	040-0250-79	Screw	1
15		Two Arm Headlock Assembly (Refer to "Headlock Assembly" Elsewhere)	Ref
16	040-0250-133	Screw (Apply Loctite #042-0025-00)	4
17	030-0950-00	Headlock Arm Weldment	1
18	053-0050-05	Hole Plug	2
19	040-0375-59	Screw (Apply Loctite #042-0025-00)	1
20	016-0131-00	Flanged Bearing	2
21	040-0010-126	Set Screw (Apply Loctite#042-0025-00)	1
22	015-0014-02	Cable Clamp	1
23	040-0010-47	Screw	3
24	040-0250-136	Screw (Apply Loctite #042-0025-00)	1
25	025-0049-00	Spring	1
26		Back Weldment (Refer to "Back Components" Elsewhere)	Ref
27	041-0004-01	Nut	2
28	050-3268-00	Switch Bracket	1
29		Headlock Limit Switch Harness (Refer to "Wiring Diagram" Elsewhere)	Ref
30	015-1024-00	Limit Switch	1
31	040-0004-09	Screw	2
32	045-0001-02	Washer	1

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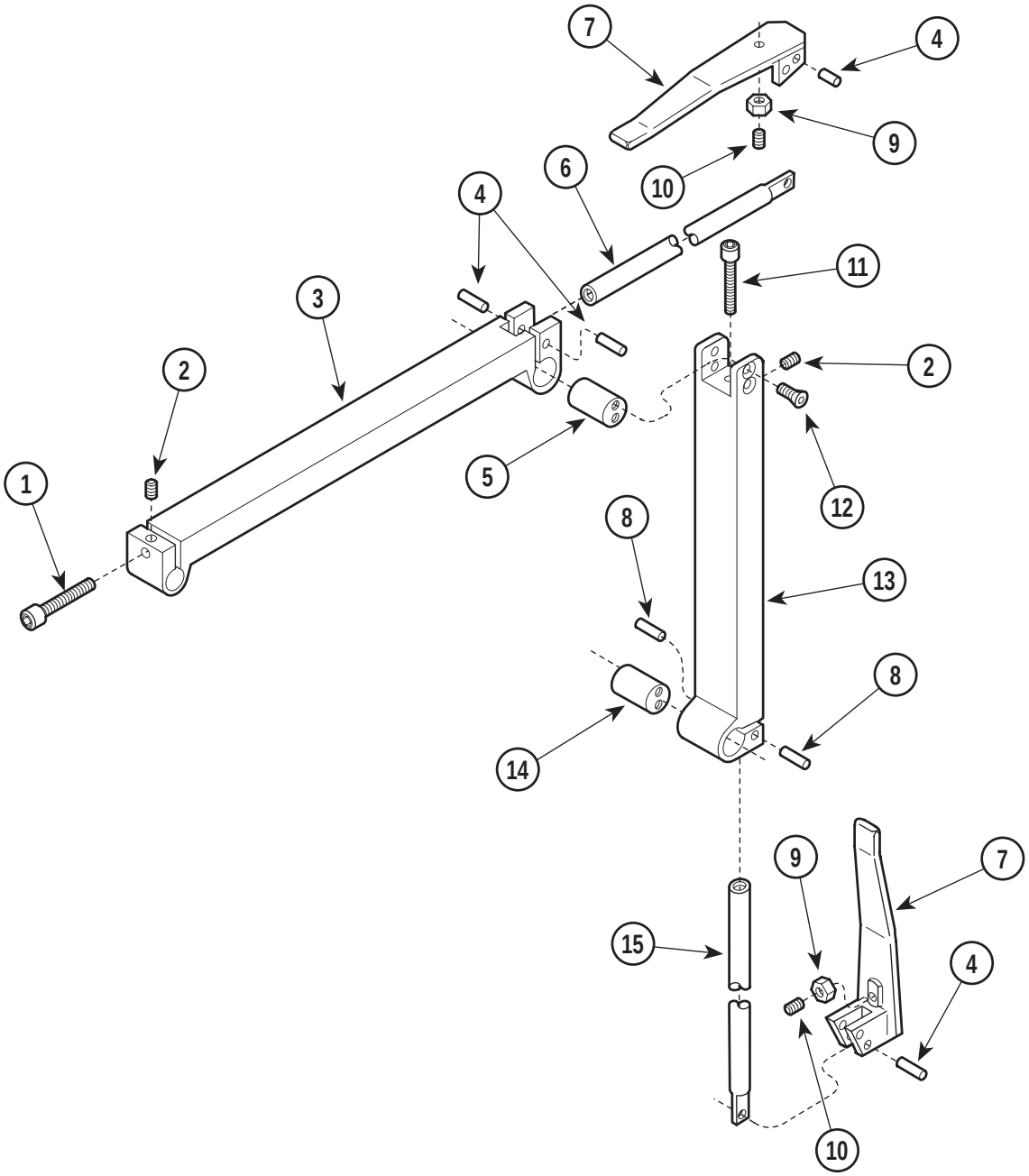
Two Arm Headlock Assembly



MA279400

Used on units with Serial Number FA-1000 thru FA-1459

Item	Part No.	Description	Qty.
	029-1100-02	Two Arm Headlock Assembly (Includes Items 1 thru 15)	1
1	• 040-0250-11	• Screw	1
2	• 040-0010-14	• Set Screw	2
3	• 030-0131-06	• Headlock Head	1
4	• 042-0002-08	• Dowel Pin	4
5	• 057-0048-01	• Pivot Bar	1
6	• 051-0080-01	• Draw Bar	1
7	• 030-0123-03	• Head Pivot Handle Weldment	2
8	• 042-0002-04	• Dowel Pin	2
9	• 041-0250-12	• Jam Nut	2
10	• 040-0250-70	• Set Screw	2
11	• 040-0250-27	• Screw	1
12	• 040-0250-54	• Screw (Apply Loctite #042-0024-00)	4
13	• 030-0132-03	• Headlock Base	1
14	• 057-0048-00	• Pivot Bar	1
15	• 051-0080-00	• Draw Bar	1

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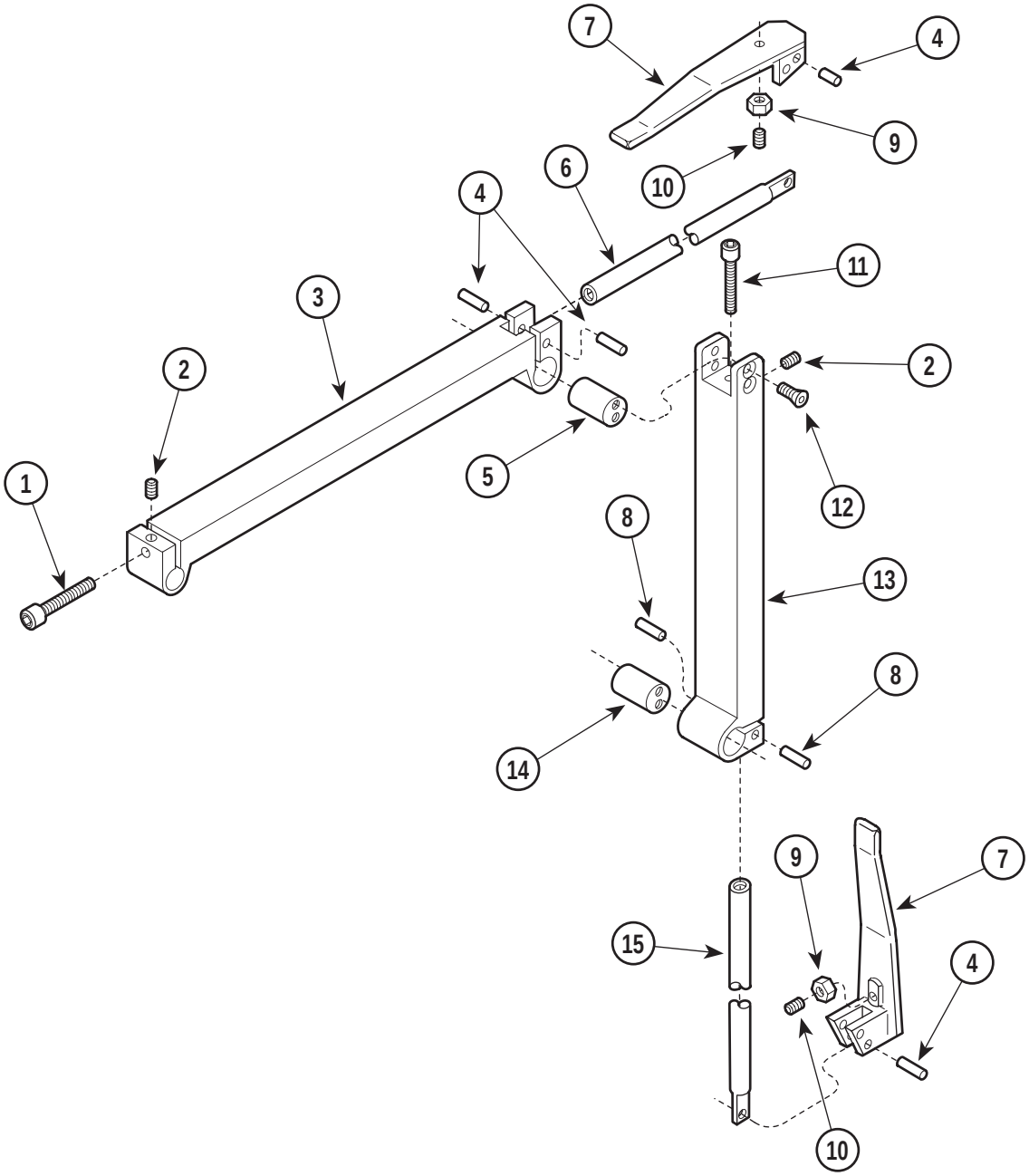
Two Arm Headlock Assembly



MA279400

Used on units with Serial Number FA-1460 & FB-1000 thru Present

Item	Part No.	Description	Qty.
	029-1100-04	Two Arm Headlock Assembly (Includes Items 1 thru 15)	1
1	• 040-0250-11	• Screw	1
2	• 040-0010-14	• Set Screw	2
3	• 030-0131-07	• Headlock Head	1
4	• 042-0002-08	• Dowel Pin	4
5	• 057-0048-01	• Pivot Bar	1
6	• 051-0080-100	• Draw Bar	1
7	• 030-0123-03	• Head Pivot Handle Weldment	2
8	• 042-0002-04	• Dowel Pin	2
9	• 041-0250-12	• Jam Nut	2
10	• 040-0250-70	• Set Screw	2
11	• 040-0250-27	• Screw	1
12	• 040-0250-139	• Screw (Apply Loctite #042-0024-00)	4
13	• 030-0132-03	• Headlock Base	1
14	• 057-0048-00	• Pivot Bar	1
15	• 051-0080-00	• Draw Bar	1

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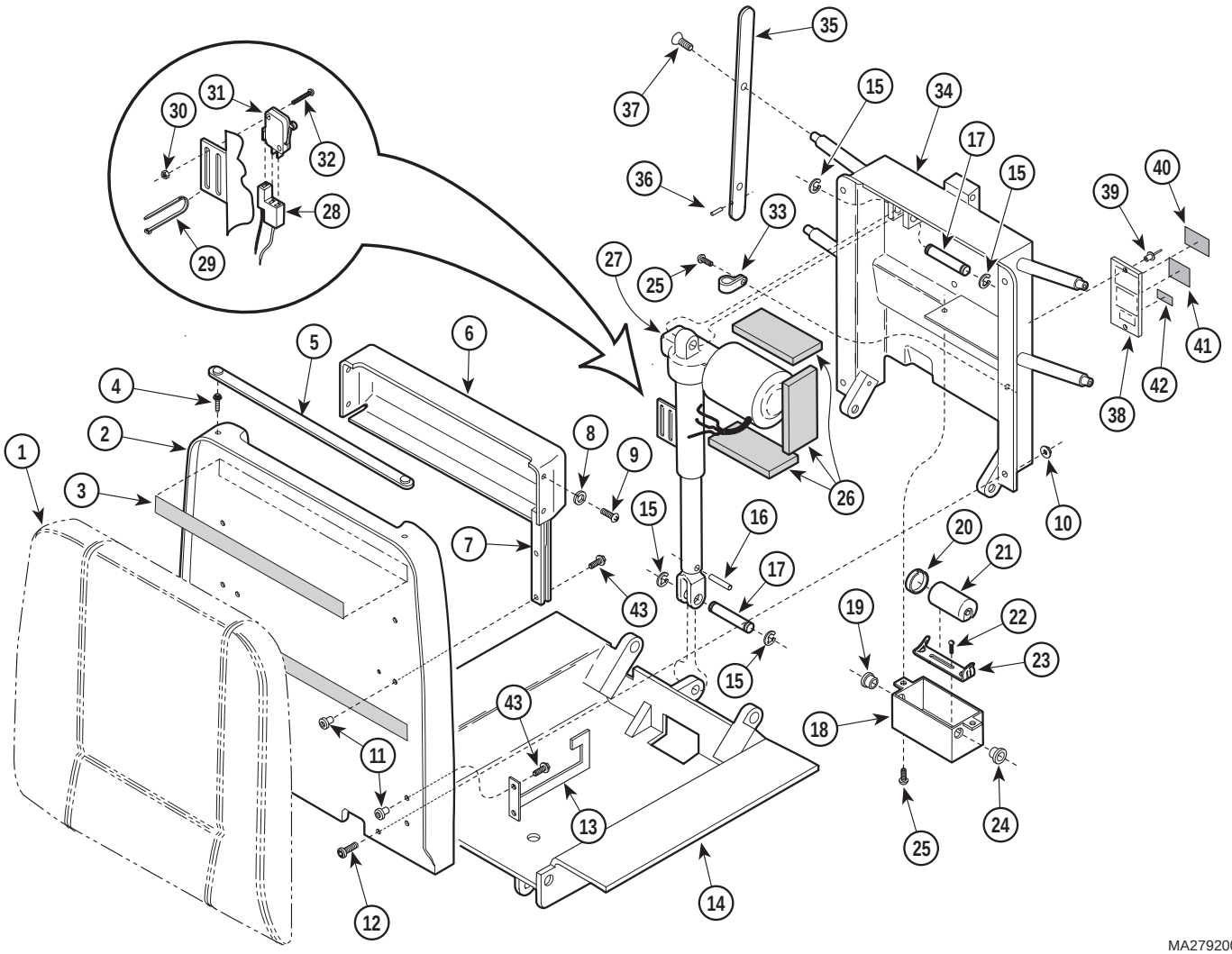
Back Components



MA279200

Item	Part No.	Description	Qty.
1		Upholstered Back and Seat Rest (Refer to "Upholstery Set" Elsewhere)	Ref
2	029-1786-00	Back Board Assembly	1
3	053-0131-04	Velcro Hook Tape	2
	042-0040-00	Staples (Not Shown)	AR
4	016-0022-00	Stud	2
5	002-0146-00	Paper Tear Strip Assembly	1
6	053-0209-00	Paper Roll Holder	1
7	016-0579-01	L.H. Paper Roll Slide (Shown)	1
	016-0579-00	R.H. Paper Roll Slide (Not Shown)	1
8	045-0001-39	Lockwasher	4
9	040-0008-29	Screw	4
10	041-0250-17	Nut	4
11	042-0060-01	Joint Connecting Nut	6
12	042-0059-01	Joint Connecting Bolt	4
13	050-3289-10	Hand Control Bracket	1
14		Seat Weldment (Refer to "Seat Components" Elsewhere)	Ref
15	042-0007-02	E-Ring	4
16	042-0001-14	Roll Pin	1
17	042-0048-01	Clevis Pin	1
18	050-3298-00	Back Capacitor Cover	1
19	053-0068-07	Snap Bushing	1
20	015-0413-01	Capacitor Cap (Domestic Only)	1
21	015-0437-03	Capacitor (Domestic)	1
	015-0723-03	Capacitor (Export)	1
22	040-0010-62	Screw	2
23	015-0412-00	Capacitor Bracket (Domestic)	1
	050-3755-00	Capacitor Bracket (Export)	1
24	053-0068-01	Snap Bushing	1
25	040-0010-47	Screw	3
26	054-0085-04	Sound Damp	3
27		Back Actuator (Refer to "Back Actuator Assembly" Elsewhere)	Ref
28		Back Actuator Harness (Refer to "Wiring Diagram" Elsewhere)	Ref
29	015-0013-02	Cable Tie	1
30	041-0004-01	Nut	2
31	015-0476-00	Limit Switch	1
32	040-0004-09	Screw	2
33	015-0014-04	Cable Clamp	1
34	030-0935-00	Back Weldment	1
35	051-0771-00	Siderail Bar	2
36	042-0009-12	Roll Pin	2
37	040-0375-45	Screw	4
38	050-3424-00	Label Mounting Plate	1
39	042-0010-15	Pop Rivet	2
40		Serial Number Label	1
41	061-0518-00	U.L./C.U.L. Label (Domestic Only)	1
42	061-0291-00	Patent Number Label	1
43	040-0250-88	Whizlock Screw	6

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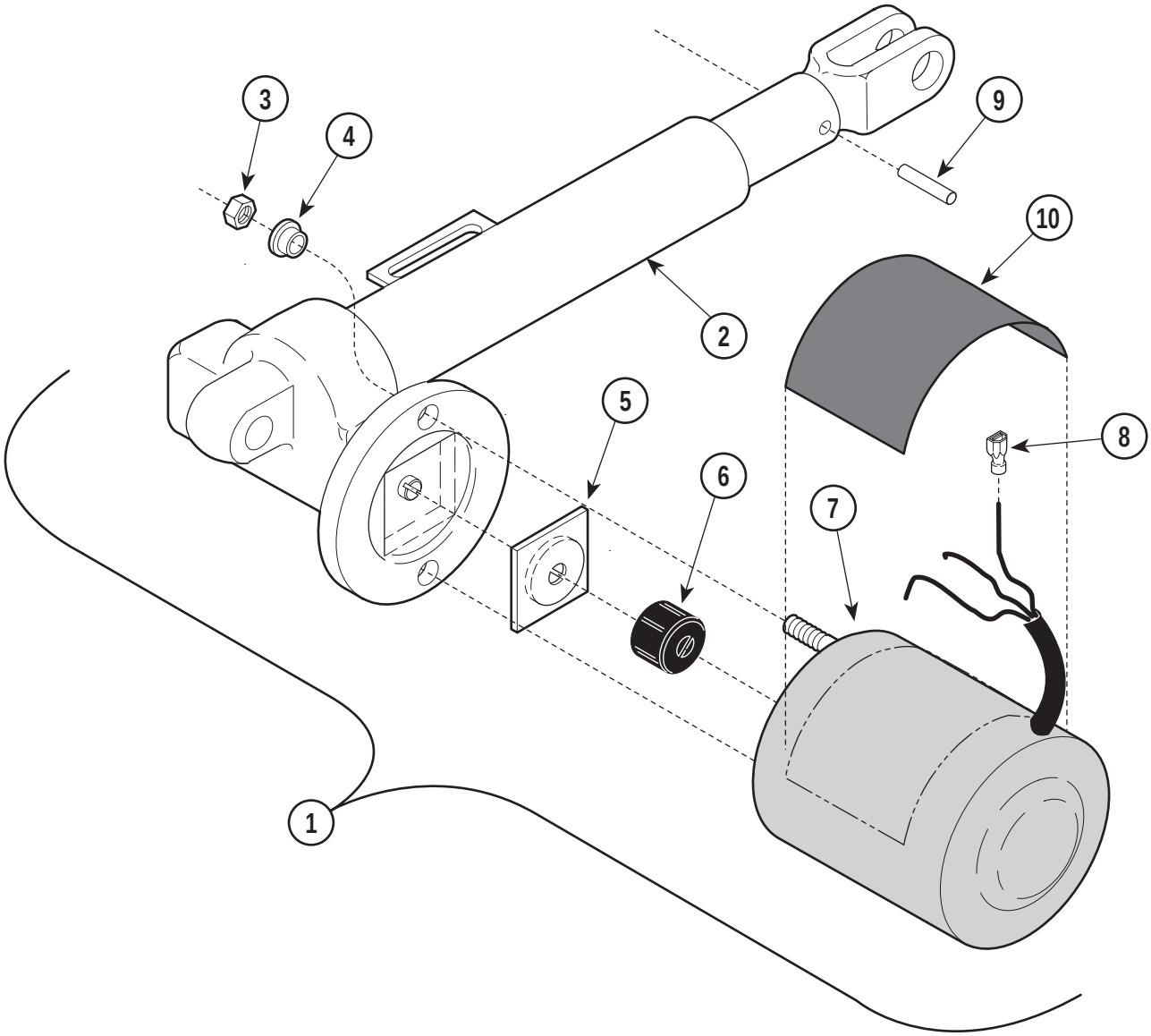
Back Actuator Assembly



MA279800

Item	Part No.	Description	Qty.
1	002-0496-00	Back Actuator Assembly - Domestic (Includes Items 2 thru 8)	1
	002-0496-01	Back Actuator Assembly - Export (Includes Items 2 thru 8)	1
2	• 016-0602-02	• Back Actuator (Less Motor)	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0237-00	• Actuator Brake	1
6	• 016-0509-00	• Motor Coupler	1
7	• 002-0574-00	• Motor - Domestic (Less Terminals)	1
	• 002-0574-02	• Motor - Export (Less Terminals)	1
8	• 015-0312-00	• Terminal (Shown)	1
	• 015-0210-01	• Flag Terminal (Not Shown)	2
9	042-0001-14	Roll Pin	1
10	061-0135-00	Caution Label	1

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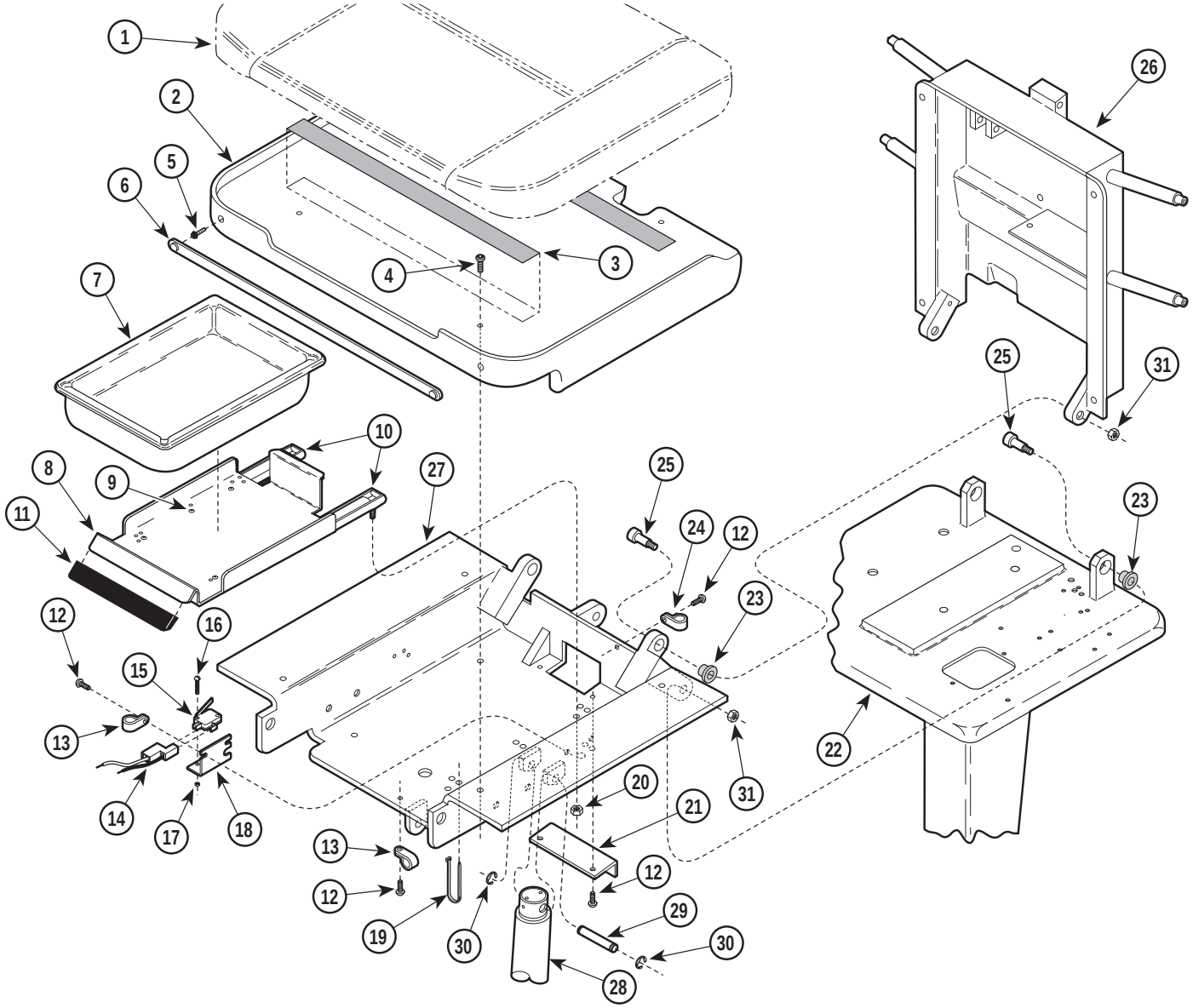
Seat Components



MA279100

Item	Part No.	Description	Qty.
1		Upholstered Back and Seat Rest (Refer to "Upholstery Set" Elsewhere)	Ref
2	029-1787-00	Seat Board Assembly	1
3	053-0131-04	Velcro Hook Tape	2
	042-0040-00	Staples (Not Shown)	AR
4	042-0059-01	Joint Connecting Bolt	4
5	016-0022-00	Stud	2
6	002-0146-00	Paper Tear Strip Assembly	1
7	016-0373-00	Treatment Pan	1
8	029-1773-00	Drain Pan Assembly (Includes Items 9 and 11)	1
9	• 042-0010-24	• Pop Rivet	6
10	• 016-0578-00	• Pan Slide	2
11	• 053-0349-01	Handle (Apply Loctite # 042-0076-00)	1
12	040-0010-47	Screw	6
13	015-0014-02	Cable Clamp	2
14		Pan Limit Switch Harness (Refer to "Wiring Diagram" Elsewhere)	Ref
15	015-1024-00	Limit Switch	1
16	040-0004-09	Screw	2
17	041-0004-01	Nut	2
18	050-3124-00	Pan Switch Bracket	1
19	015-0013-02	Cable Tie	4
20	041-0008-02	Nut	4
21	053-0756-00	Tilt Cover	1
22		Column Adapter Weldment (Refer to "Base Electrical Comp." Elsewhere)	Ref
23	016-0131-04	Flanged Bearing	4
24	015-0014-04	Cable Clamp	1
25	042-0014-05	Shoulder Screw (Apply Loctite #042-0025-00)	4
26		Back Weldment (Refer to "Back Components" Elsewhere)	Ref
27	030-0938-00	Seat Weldment	1
28		Tilt Actuator (Refer To "Tilt Actuator Assembly" Elsewhere)	Ref
29	042-0048-02	Clevis Pin	1
30	042-0007-02	E-Ring	2
31	041-0500-00	Hex Jam Nut	4

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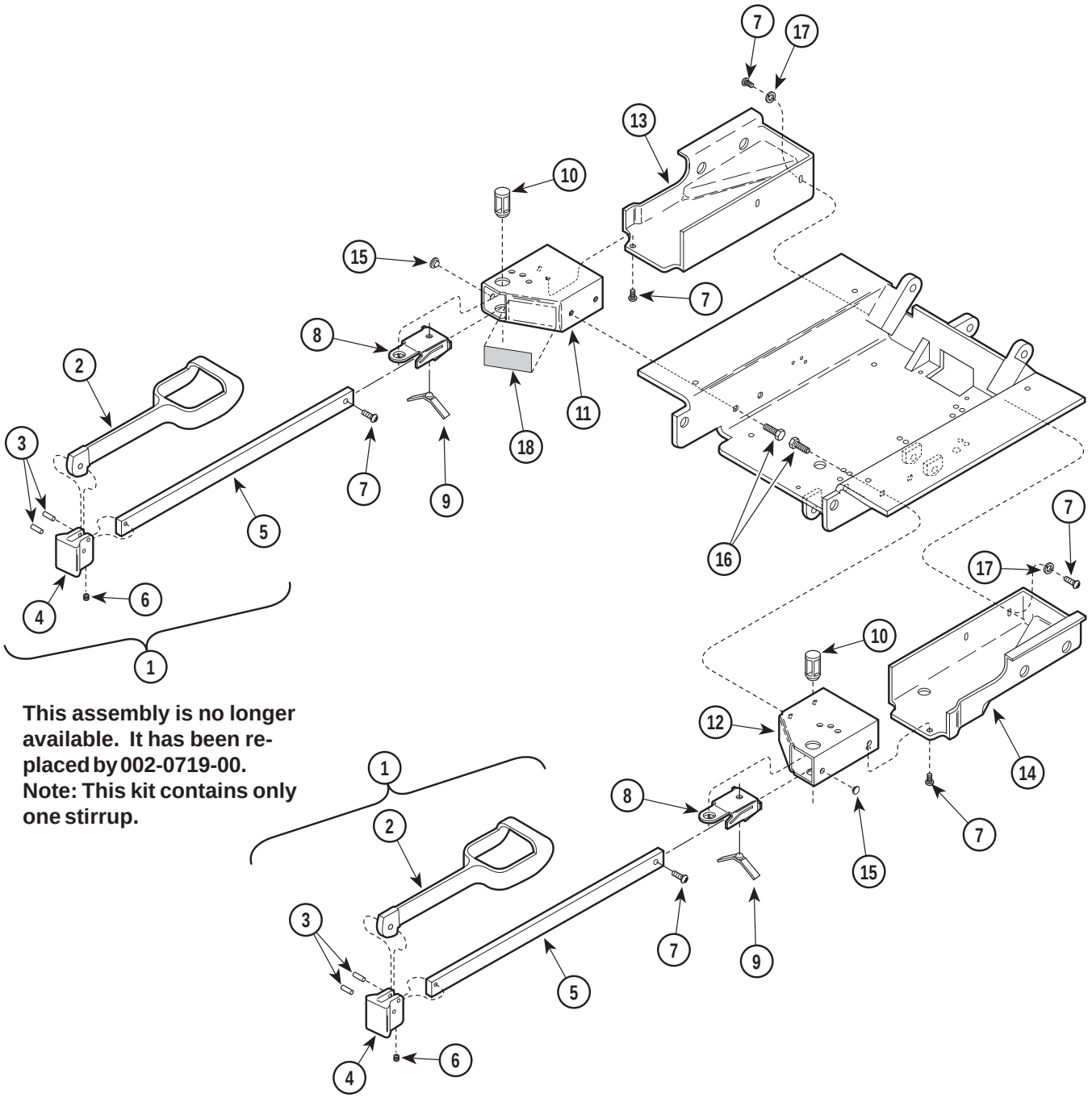
Stirrup Assembly



This assembly is no longer available. It has been replaced by 002-0719-00. Note: This kit contains only one stirrup.

MA278500

Item	Part No.	Description	Qty.
1	029-1397-00	Stirrup Assembly (Includes Items 2 thru 5)	2
2	• 020-0181-00	• Stirrup	1
3	• 042-0001-00	• Roll Pin	2
4	• 020-0182-00	• Pivot Block	1
5	• 051-0668-00	• Horizontal Bar	1
6	• 040-0250-15	• Set Screw	1
7	040-0010-47	Screw	8
8	050-5027-00	Bracket	2
9	016-0400-00	Spring	2
10	053-0387-00	Pivot Boss	2
11	030-0725-00	R.H. Stirrup Mount Weldment	1
12	030-0726-00	L.H. Stirrup Mount Weldment	1
13	053-0754-00	R.H. Stirrup Housing	1
14	053-0754-01	L.H. Stirrup Housing	1
15	053-0050-05	Hole Plug	4
16	040-0375-00	Screw	4
17	045-0001-00	Lockwasher	4
18	061-0296-00	Stirrup Tag	1

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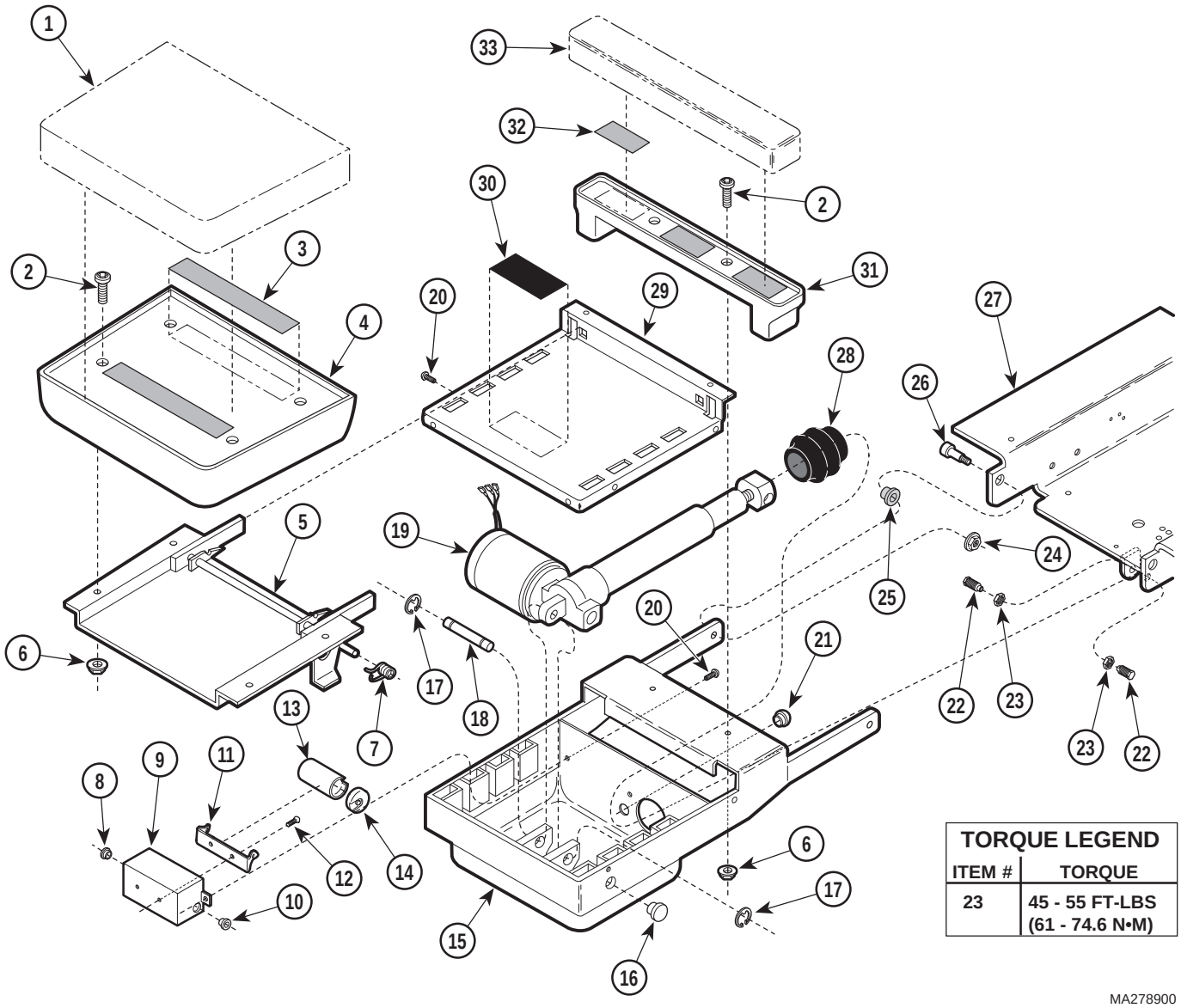
Leg Components



TORQUE LEGEND	
ITEM #	TORQUE
23	45 - 55 FT-LBS (61 - 74.6 N•M)

MA278900

Item	Part No.	Description	Qty.
1		Upholstered Foot Rest (Refer to "Upholstery Set" Elsewhere)	Ref
2	042-0059-01	Joint Connecting Bolt	6
3	053-0131-32	Velcro Hook Tape	2
	042-0040-00	Staples (Not Shown)	AR
4	029-1789-00	Foot Board Assembly	1
5	030-0943-10	Footboard Weldment	1
6	041-0250-17	Nut	6
7	025-0045-01	L.H. Torsion Spring (Shown)	1
	025-0045-00	R.H. Torsion Spring (Not Shown)	1
8	053-0789-00	Split Snap Bushing	1
9	050-3233-00	Foot Capacitor Cover	1
10	053-0068-01	Snap Bushing	1
11	015-0412-00	Capacitor Bracket (Domestic)	1
	050-3755-00	Capacitor Bracket (Export)	1
12	040-0010-62	Screw	2
13	015-0437-04	Capacitor (Domestic)	1
	015-0723-00	Capacitor (Export)	1
14	015-0413-00	Capacitor Cap (Domestic Only)	1
15	030-0944-00	Foot Extension Weldment	1
16	053-0050-06	Hole Plug	2
17	042-0007-00	E-Ring	2
18	042-0006-03	Clevis Pin	1
19		Foot Actuator (Refer to "Foot Actuator Assembly" Elsewhere)	Ref
20	040-0010-47	Screw	6
21	015-0002-03	Strain Relief Bushing	1
22	051-0769-00	Pivot Screw	2
23	041-0625-01	Jam Nut	2
24	041-0375-05	Jam Nut	2
25	016-0131-13	Flanged Bearing	2
26	042-0014-00	Shoulder Screw	2
27		Seat Weldment (Refer to "Seat Components" Elsewhere)	Ref
28	053-0749-00	Foot Actuator Bellow	1
29	050-3255-00	Front Trim	1
30	016-0604-01	Adhesive Magnet	1
31	029-1790-00	Leg Board Assembly	1
32	053-0131-11	Velcro Hook Tape	3
	042-0040-00	Staples (Not Shown)	AR
33		Upholstered Leg Rest (Refer to "Upholstery Set" Elsewhere)	Ref

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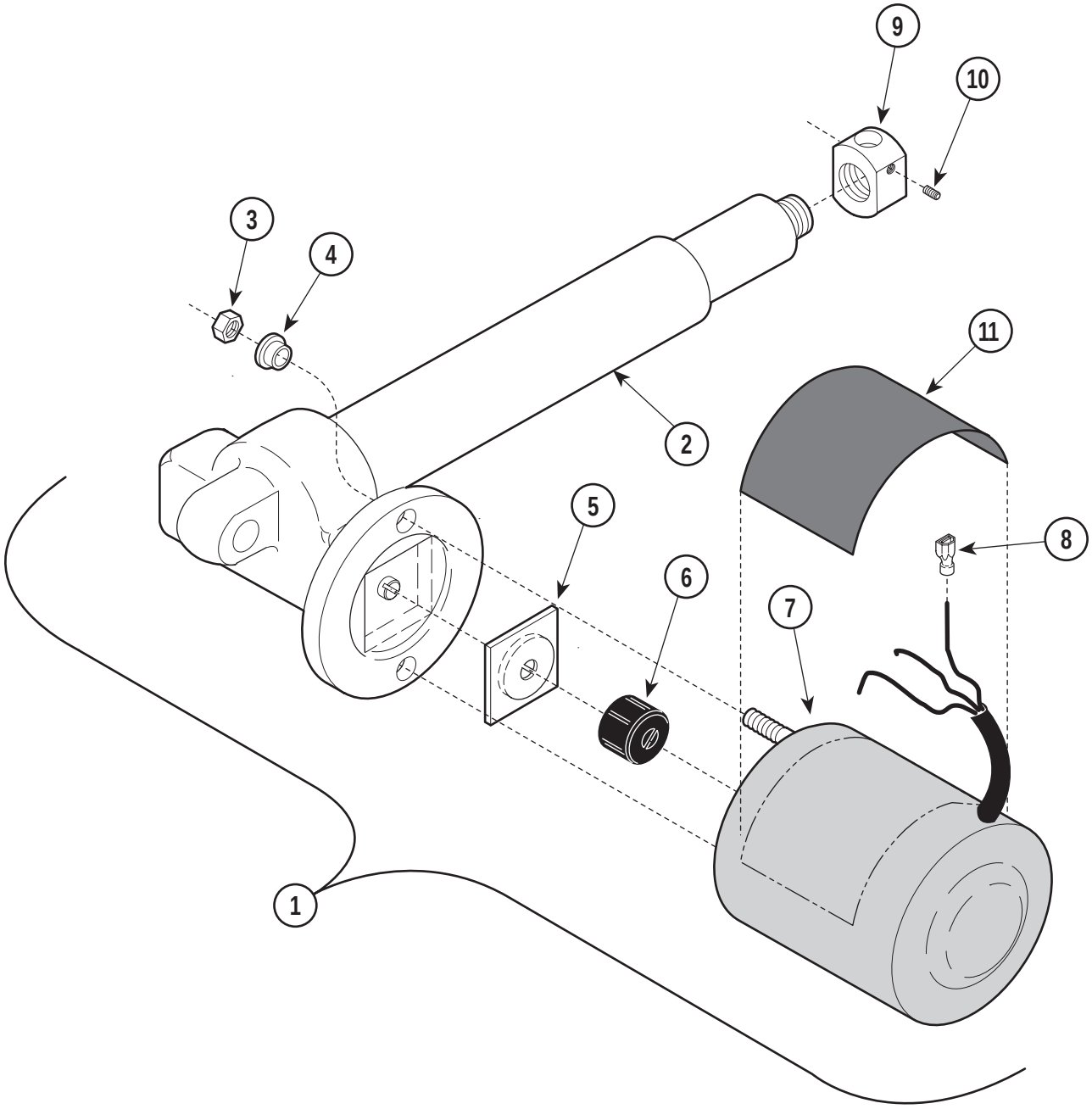
Foot Actuator Assembly



MA279900

Item	Part No.	Description	Qty.
1	002-0495-00	Foot Actuator Assembly - Domestic (Includes Items 2 thru 10)	1
	002-0495-01	Foot Actuator Assembly - Export (Includes Items 2 thru 10)	1
2	• 016-0583-02	• Back Actuator (Less Motor)	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0237-00	• Actuator Brake	1
6	• 016-0509-00	• Motor Coupler	1
7	• 002-0574-00	• Motor - Domestic (Less Terminals)	1
	• 002-0574-02	• Motor - Export (Less Terminals)	1
8	• 015-0312-00	• Terminal (Shown)	1
	• 015-0210-01	• Flag Terminal (Not Shown)	2
9	• 057-0403-00	• Adjustable End Mount	1
10	• 040-0010-14	• Set Screw	2
11	061-0135-00	Caution Label	1

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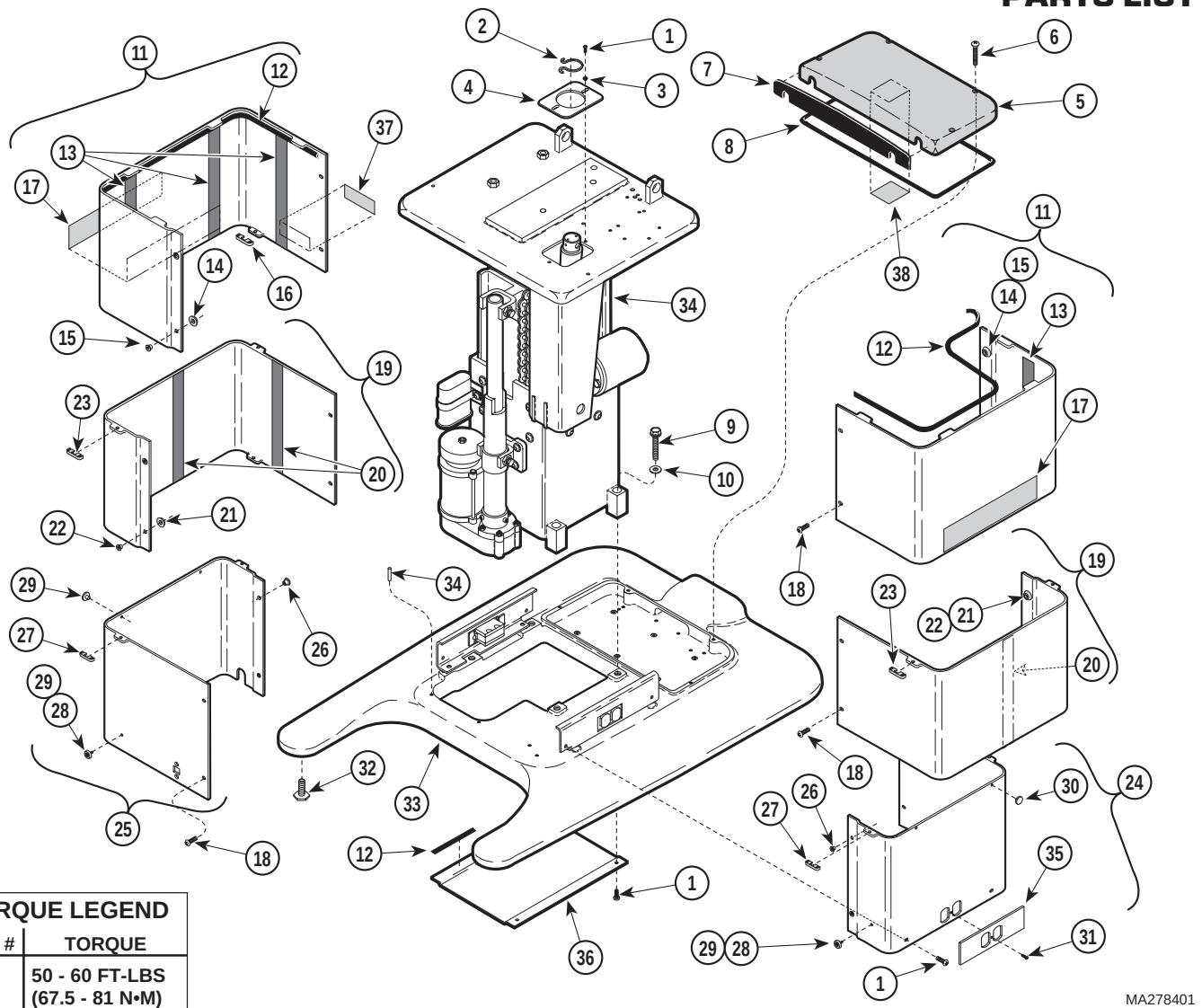
Base Cover Components



MA278401

TORQUE LEGEND	
ITEM #	TORQUE
9	50 - 60 FT-LBS (67.5 - 81 N•M)

Item	Part No.	Description	Qty.
1	040-0010-47	Screw	10
2	061-0497-00	Fuse Label	1
3	053-0757-00	Guide	2
4	053-0916-00	Cover Plate	1
5	020-0161-00	P.C. Board Cover	1
6	040-0010-119	Screw	4
7	054-0215-00	Cover Gasket	1
8	053-0717-00	Outer Shroud Seal (Qty. = Feet)	4
9	040-0500-23	Screw	4
10	045-0001-95	Washer	4
11	029-1849-00	Outer Shroud Assembly (Includes Items 12 thru 18 [Qtys. for {1} Shroud])	2
12	• 053-0717-00	• Outer Shroud Seal (Qty. = Total Feet)	5
13	• 053-0105-29	• Velcro Loop	3
14	• 053-0755-00	• Nutsert Glide	2
15	• 042-0045-02	• Nutsert	2
16	• 053-0752-00	• Snap-on Glide	2
17	• 061-0511-00	• Model Decal - (75L)	1
	• 061-0521-00	• Registered Label (Not Shown)	1
18	040-0008-78	Screw	12
19	029-1848-00	Middle Shroud Assembly (Includes Items 20 thru 23 [Qtys. for {1} Shroud])	2
20	• 053-0105-29	• Velcro Loop	2
21	• 053-0755-00	• Nutsert Glide	2
22	• 042-0045-02	• Nutsert	2
23	• 053-0752-00	• Snap-on Glide	2
24	029-1847-00	R.H. Inner Shroud Assy.-Domestic (Incl. Items 26 thru 30 [Qtys. for {1} Shroud])	1
	029-1847-02	R.H. Inner Shroud Assy.-Export (Incl. Items 26 thru 30 [Qtys. for {1} Shroud])	1
25	029-1847-01	L.H. Inner Shroud Assy.-Domestic (Incl. Items 26 thru 30 [Qtys. for {1} Shroud])	1
	029-1847-03	L.H. Inner Shroud Assy.-Export (Incl. Items 26 thru 30 [Qtys. for {1} Shroud])	1
26	• 042-0045-02	• Nutsert	2
27	• 053-0752-00	• Snap-on Glide	2
28	• 053-0796-00	• Bumper	2
29	• 040-0006-76	• Screw (Not Shown)	2
30	• 053-0001-00	• Nylon Stem Bumper	2
31	040-0006-75	Screw (Domestic Units Only)	2
32	016-0001-01	Leveling Screw	4
33	020-0154-00	Machined Base	1
34		Column (Refer to "Column Assembly" Elsewhere)	Ref
35	061-0637-00	Receptacle Plate (Domestic)	2
36	050-3116-00	Bottom Cover	1
37	561-0262-00	Caution Label	1

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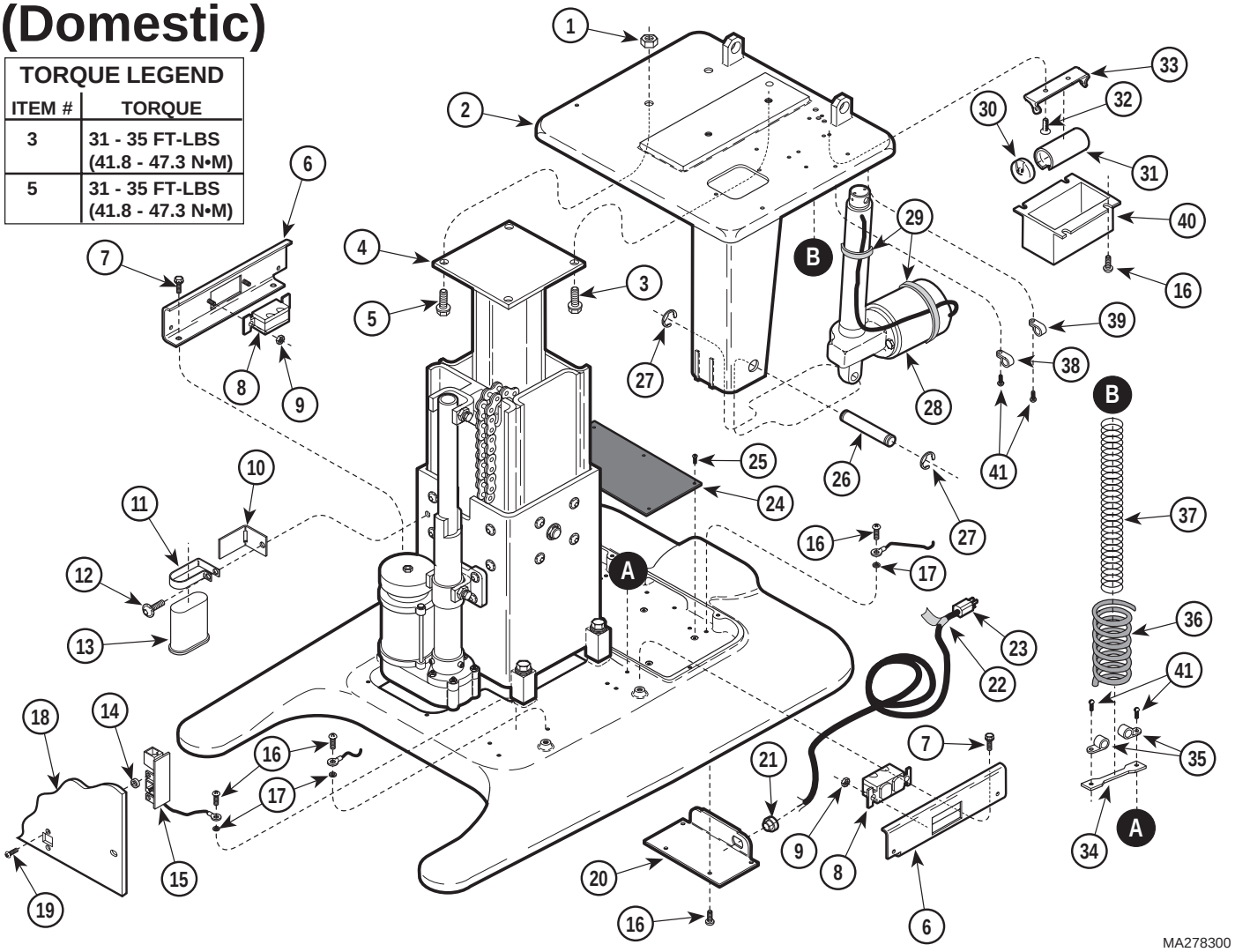
Base Electrical Components (Domestic)

TORQUE LEGEND	
ITEM #	TORQUE
3	31 - 35 FT-LBS (41.8 - 47.3 N•M)
5	31 - 35 FT-LBS (41.8 - 47.3 N•M)



MA278300

Item	Part No.	Description	Qty.
1	041-0375-10	Nut	2
2	030-0937-00	Column Adapter Weldment	1
3	040-0375-38	Screw (Apply Loctite #042-0025-00)	2
4		Column (Refer to " Column Components" Elsewhere)	Ref
5	040-0375-38	Screw	2
6	030-0936-10	Receptacle Mounting Weldment	1
7	040-0250-88	Screw	4
8	015-0083-02	Duplex Receptacle	2
9	041-0008-02	Nut	4
10	050-3491-10	Capacitor Bracket	1
11	050-3323-00	Capacitor Strap	1
12	042-0151-00	Screw	1
13	015-0723-03	Motor Run Capacitor	1
14	016-0138-09	Spacer	4
15	015-0836-00	Control Inlet P.C. Board	2
16	040-0010-47	Screw	28
17	045-0001-31	Lockwasher	8
18		Inner Shroud Assembly (Refer to "Base Cover Components" Elsewhere)	1
19	040-0008-79	Screw	4
20	050-3114-00	Power Inlet Bracket	1
21	015-0002-05	Strain Relief Bushing	1
22	061-0295-00	Cord Tag	1
23	015-0066-04	Cord Assembly	1

Item	Part No.	Description	Qty.
24	015-1132-00	P.C. Board Assembly	1
25	040-0006-73	Screw	6
26	042-0048-11	Clevis Pin	1
27	042-0007-02	E-Ring	2
28		Tilt Actuator (Refer To "Tilt Actuator Assembly" Elsewhere)	Ref
29	015-0013-01	Cable Tie (14.5" Long)	2
30	015-0413-00	Capacitor Cap	1
31	015-0437-02	Capacitor	1
32	040-0010-62	Screw	2
33	015-0412-00	Capacitor Bracket	1
34	050-3394-00	Spring Bracket	2
35	015-0001-01	Wire Clip	4
36		Main Harness (Refer to "Wiring Diagram" Elsewhere)	Ref
37	525-0055-03	Extension Spring	1
38	015-0014-02	Cable Clamp (3/16")	5
39	015-0014-04	Cable Clamp (1/4")	3
40	050-3332-00	Connection Cover	1
41	040-0010-129	Screw	4
42	015-0013-02	Cable Tie (3.87" {Not Shown})	12
43	015-0016-00	Cable Tie (11.5" {Not Shown})	1
44	015-0017-00	Cable Tie W/ Mtg. Hole (Not Shown)	3
45	015-0010-04	4" Spiral Wrap (Not Shown)	2

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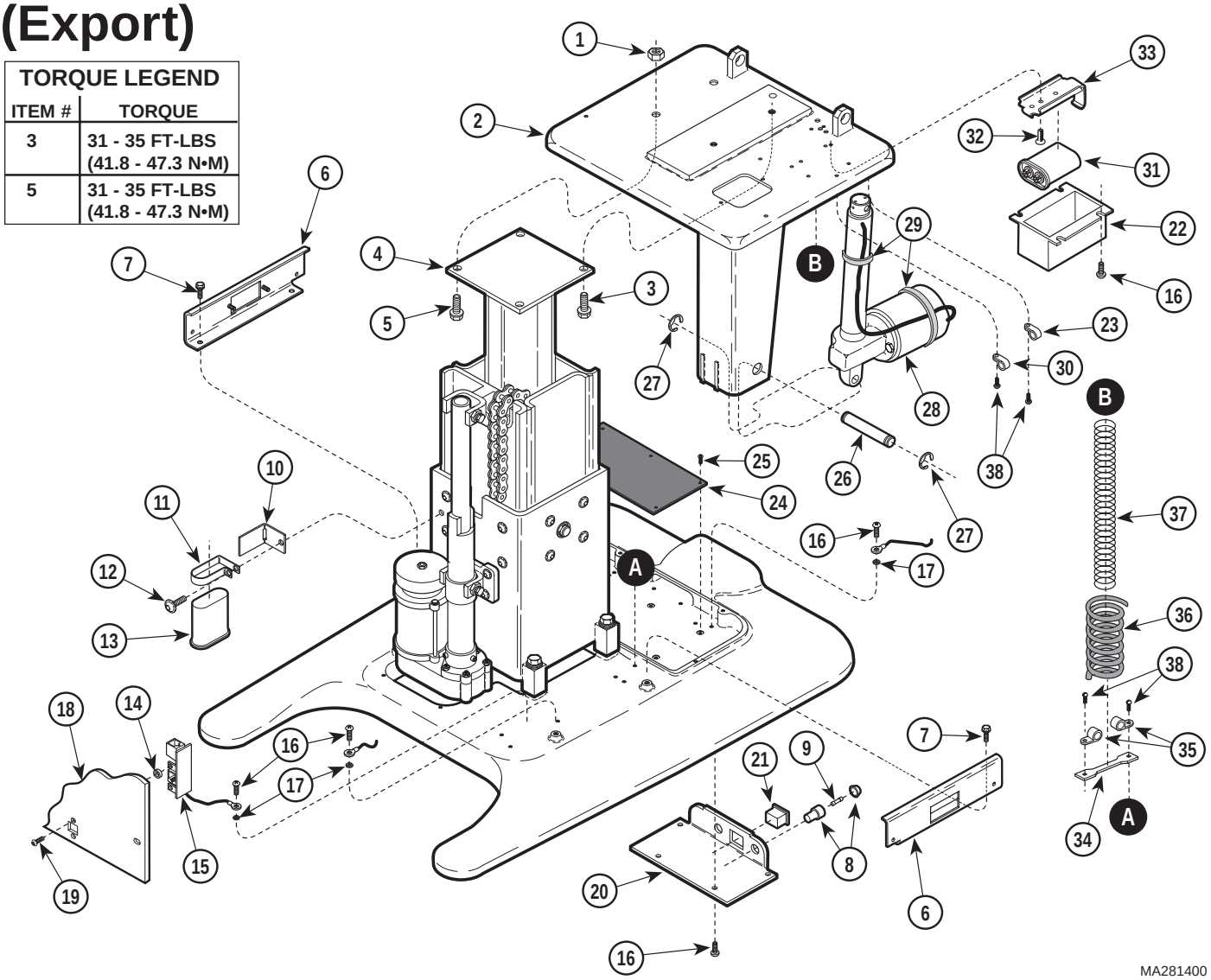
Base Electrical Components (Export)

TORQUE LEGEND	
ITEM #	TORQUE
3	31 - 35 FT-LBS (41.8 - 47.3 N•M)
5	31 - 35 FT-LBS (41.8 - 47.3 N•M)



MA281400

Item	Part No.	Description	Qty.
1	041-0375-10	Nut	2
2	030-0937-00	Column Adapter Weldment	1
3	040-0375-38	Screw (Apply Loctite #042-0025-00)	2
4		Column (Refer to " Column Components" Elsewhere)	Ref
5	040-0375-38	Screw	2
6	030-0936-10	Receptacle Mounting Weldment	1
7	040-0250-88	Screw	4
8	015-1059-00	Fuseholder	2
9	015-0346-19	Fuse	2
10	050-3491-10	Capacitor Bracket	1
11	050-3477-00	Capacitor Strap	1
12	042-0151-00	Screw	1
13	015-0723-02	Motor Run Capacitor	1
14	016-0138-09	Spacer	4
15	015-0836-00	Control Inlet P.C. Board	2
16	040-0010-47	Screw	28
17	045-0001-31	Lockwasher	8
18		Inner Shroud Assembly (Refer to "Base Cover Components" Elsewhere)	1
19	040-0008-79	Screw	4
20	050-3140-00	Appliance Inlet Bracket	1
21	015-0639-00	AC Connector receptacle	1

Item	Part No.	Description	Qty.
22	050-3332-00	Connection Cover	1
23	015-0014-04	Cable Clamp (1/4")	3
24	015-1132-01	P.C. Board Assembly	1
25	040-0006-73	Screw	6
26	042-0048-11	Clevis Pin	1
27	042-0007-02	E-Ring	2
28		Tilt Actuator (Refer To "Tilt Actuator Assembly" Elsewhere)	Ref
29	015-0013-01	Cable Tie (14.5" Long)	2
30	015-0014-02	Cable Clamp (3/16")	5
31	015-0723-03	Capacitor	1
32	040-0010-62	Screw	2
33	050-3755-00	Capacitor Bracket	1
34	050-3394-00	Spring Bracket	2
35	015-0001-01	Wire Clip	4
36		Main Harness (Refer to "Wiring Diagram" Elsewhere)	Ref
37	525-0055-03	Extension Spring	1
38	040-0010-129	Screw	4
39	015-0013-02	Cable Tie (3.87" {Not Shown})	12
40	015-0016-00	Cable Tie (11.5" {Not Shown})	1
41	015-0017-00	Cable Tie W/ Mtg. Hole (Not Shown)	3
42	015-0010-04	4" Spiral Wrap (Not Shown)	2

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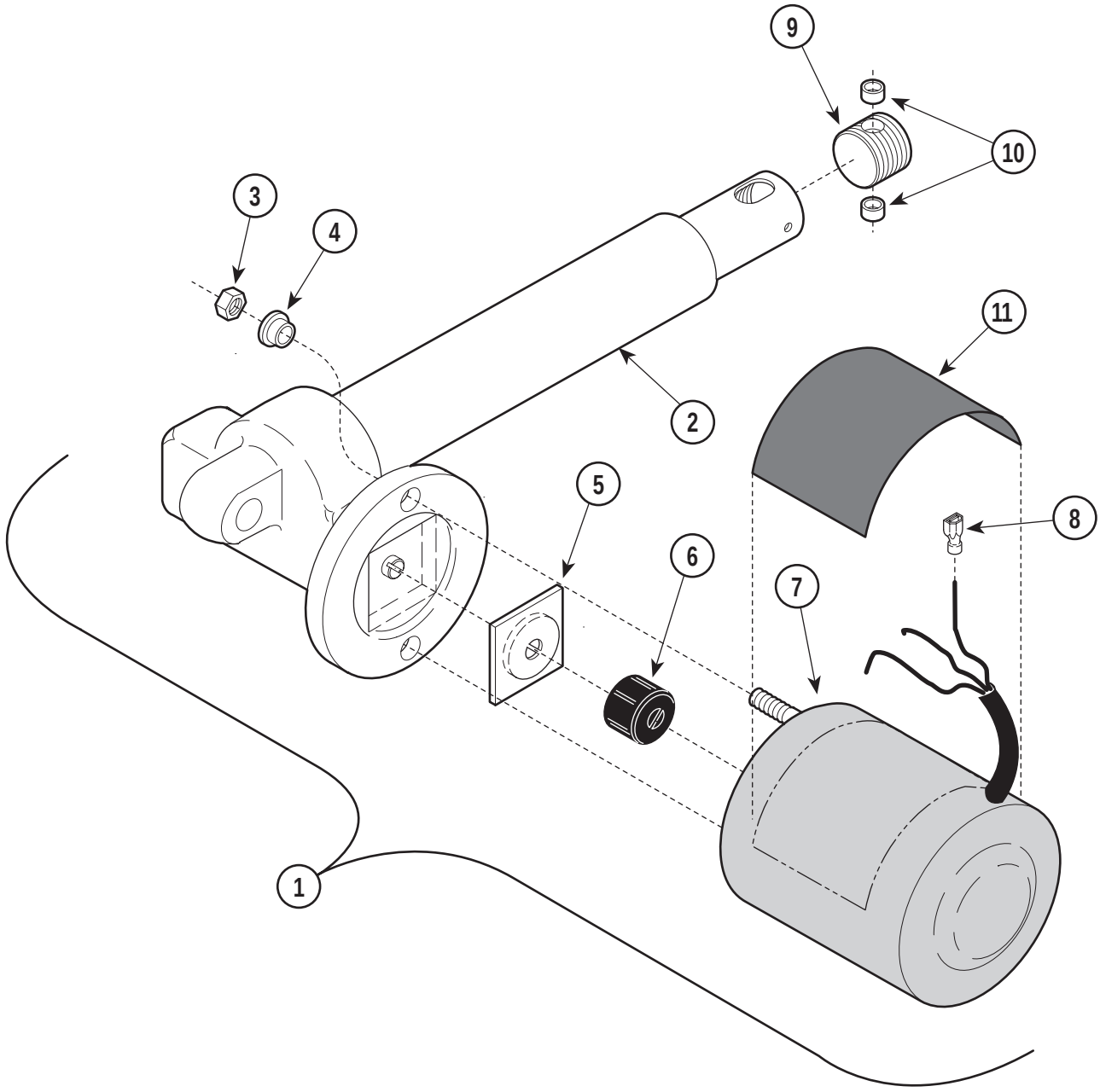
Tilt Actuator Assembly



MA280000

Item	Part No.	Description	Qty.
1	002-0498-00	Tilt Actuator Assembly - Domestic (Includes Items 2 thru 10)	1
	002-0498-01	Tilt Actuator Assembly - Export (Includes Items 2 thru 10)	1
2	• 016-0582-02	• Back Actuator (Less Motor)	1
3	•	• Nut	2
4	• 053-0198-00	• Shoulder Washer	2
5	• 016-0237-00	• Actuator Brake	1
6	• 016-0509-00	• Motor Coupler	1
7	• 002-0574-04	• Motor - Domestic (Less Terminals)	1
	• 002-0574-05	• Motor - Export (Less Terminals)	1
8	• 015-0312-00	• Terminal (Shown)	1
	• 015-0210-01	• Flag Terminal (Not Shown)	2
9	• 057-0402-00	• Adjustable End Mount (Includes Item 10)	1
10	• •	• • Bronze Bearing	2
11	061-0135-00	Caution Label	1

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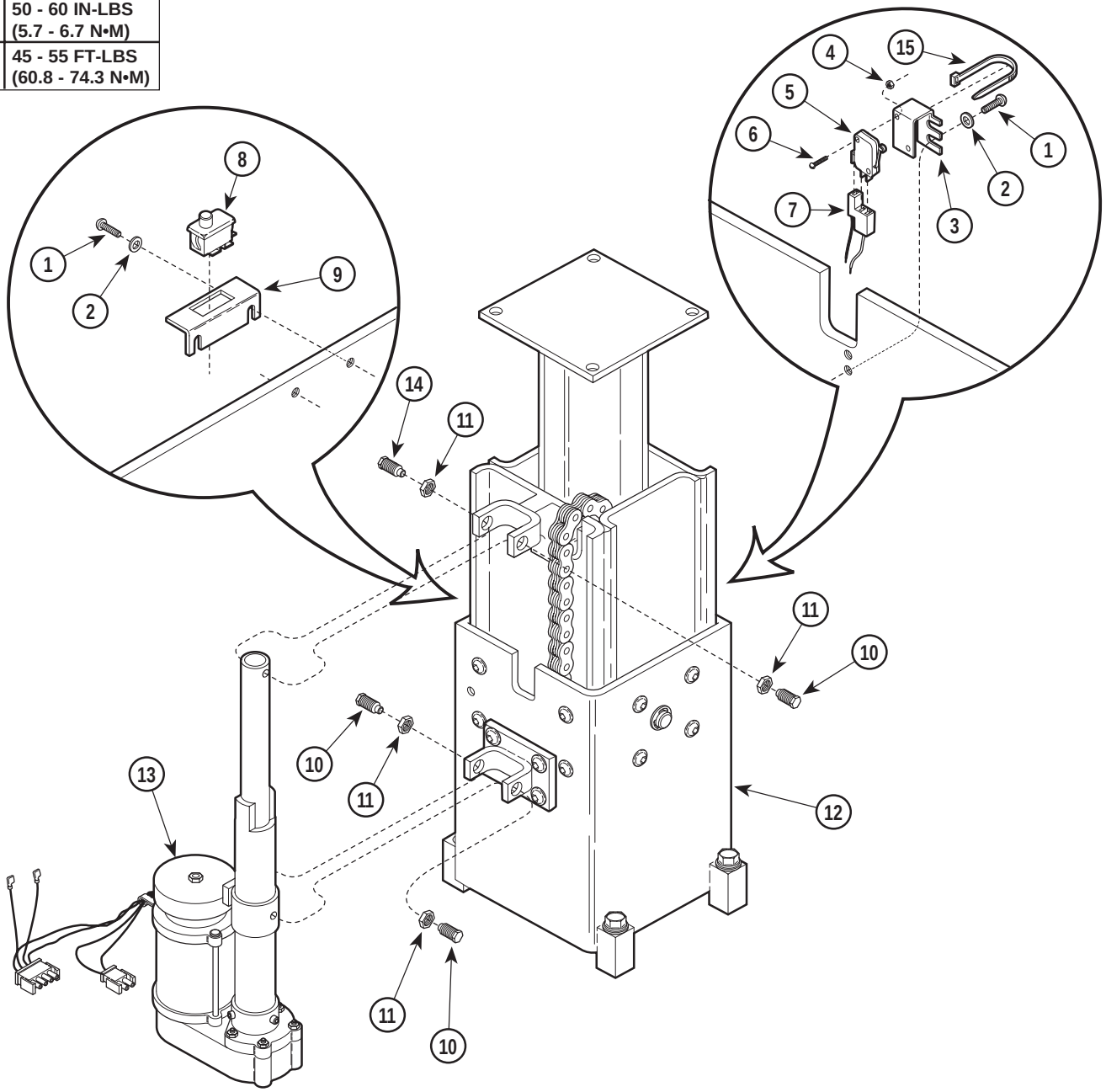
Column Components

TORQUE LEGEND	
ITEM #	TORQUE
10	50 - 60 IN-LBS (5.7 - 6.7 N•M)
11	45 - 55 FT-LBS (60.8 - 74.3 N•M)



MA345800

Item	Part No.	Description	Qty.
1	040-0010-47	Screw	4
2	045-0001-00	Lockwasher	4
3	050-3329-10	Limit Switch Bracket	1
4	041-0001-01	Nut	2
5	015-0476-00	Switch	1
6	040-0004-09	Screw	2
7		Limit SwitchWiring (Refer to "Wiring Diagram" Elsewhere)	Ref
8	015-1055-00	Panel Mount Switch	1
9	050-3328-10	Switch Bracket	1
10	051-0769-00	Coated Pivot Screw (Apply Loctite #042-0025-00)	3
11	041-0625-01	Jam Nut	4
12	002-0587-00	120V. Domestic Column Kit (Refer to "Column Assembly" Elsewhere [Includes Capacitor and Actuator])	Ref
	002-0589-00	Column Kit (Refer to "Column Assembly" Elsewhere [Less Capacitor & Actuator])	Ref
13		Base Actuator (Refer to "Base Actuator Assembly" Elsewhere"	Ref
14	051-0769-02	Coated Pivot Screw w/ Hole (Apply Loctite #042-0025-00)	1
15	015-0013-02	Cable Tie (Not Shown)	1
16	015-0013-00	Cable Tie (Not Shown)	1

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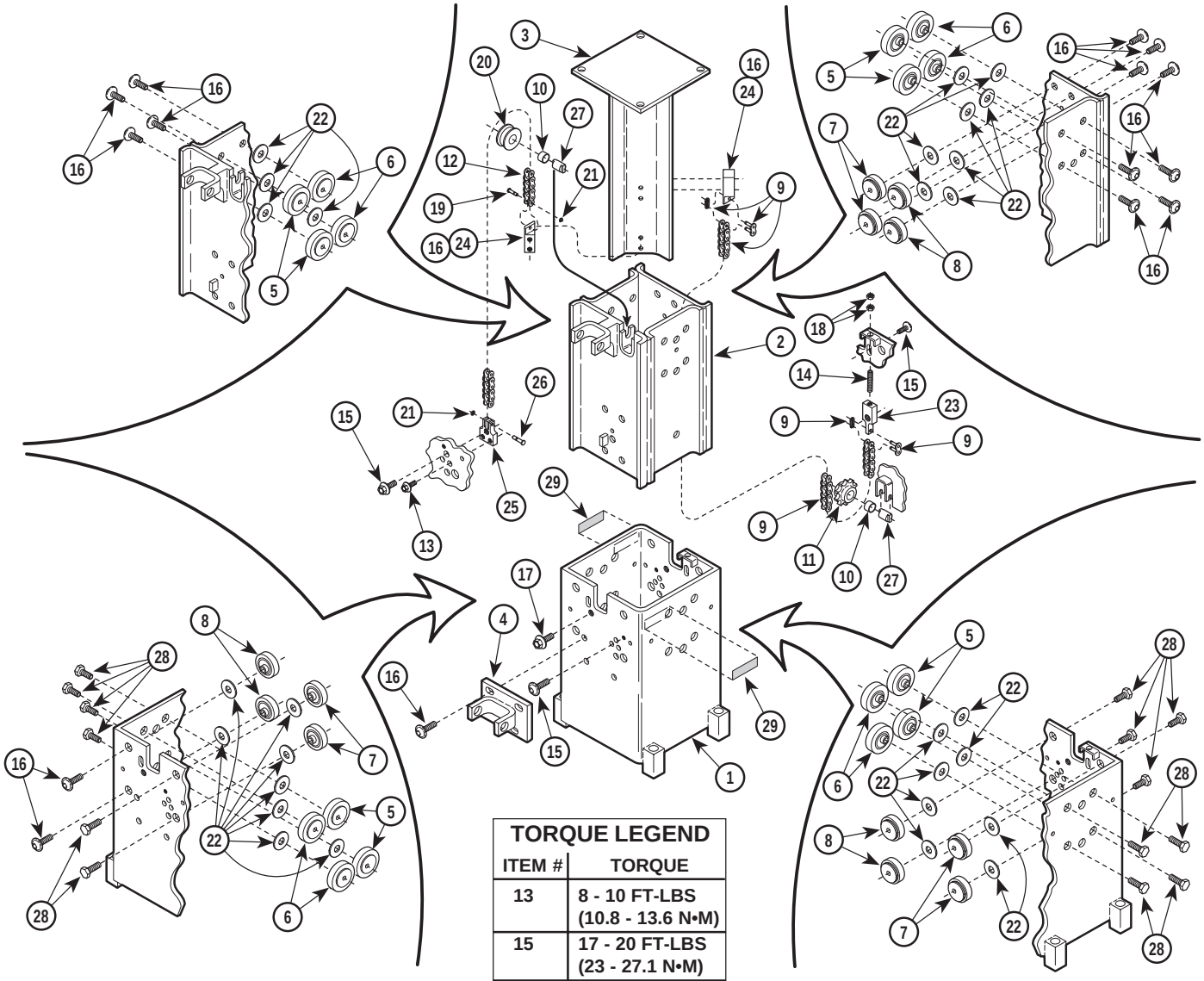
Column Assembly



TORQUE LEGEND	
ITEM #	**TORQUE**
13	8 - 10 FT-LBS (10.8 - 13.6 N•M)
15	17 - 20 FT-LBS (23 - 27.1 N•M)
16	23 - 27 FT-LBS (28.8 - 36.4 N•M) (With Actuator Installed)
17	17 - 20 FT-LBS (23 - 27.1 N•M)

MA345900

Item	Part No.	Description	Qty.
		Column Assembly (Includes Items 1 thru 28)	1
1	• 030-0903-10	• Outer Slide Weldment	1
2	• 030-0902-10	• Middle Slide Weldment	1
3	• 030-0901-10	• Inner Slide Weldment	1
4	• 030-0931-10	• Lower Actuator Support	1
5	• 029-1798-00	• Tire / Spindle / Bearing Assembly	8
6	• 029-1798-01	• Tire / Spindle / Bearing Assembly	8
7	• 029-1798-02	• Tire / Spindle / Bearing Assembly	6
8	• 029-1798-03	• Tire / Spindle / Bearing Assembly	6
9	• 016-0047-00	• Chain Assembly (Incl. Connectors)	1
10	• 016-0149-00	• Sleeve Bearing	2
11	• 016-0152-00	• Sprocket	1
12	• 016-0454-00	• Leaf Chain	1
13	• 040-0250-95	• Screw	2
14	• 040-0312-20	• Set Screw	1
15	• 040-0312-24	• Screw	3
16	• 042-0151-00	• Screw	21
17	• 040-0375-38	• Screw	1
18	• 041-0312-00	• Jam Nut (Apply Loctite #042-0025-00)	2
19	• 057-0400-00	• Chain Pin	1
20	• 057-0401-00	• Chain Roller	1
21	• 042-0101-02	• Retaining Ring - External	2
22	• 045-0001-89	• Washer	28
23	• 051-0720-00	• Drawbolt Chain End	1
24	• 051-0765-00	• 45° Chain End	2
25	• 051-0766-00	• Leaf Chain End	1
26	• 057-0400-02	• Chain Pin	1
27	• 057-0384-00	• Sprocket Hub	2
28	• 040-0312-59	• Screw	14
29	061-0045-00	Caution Label	2

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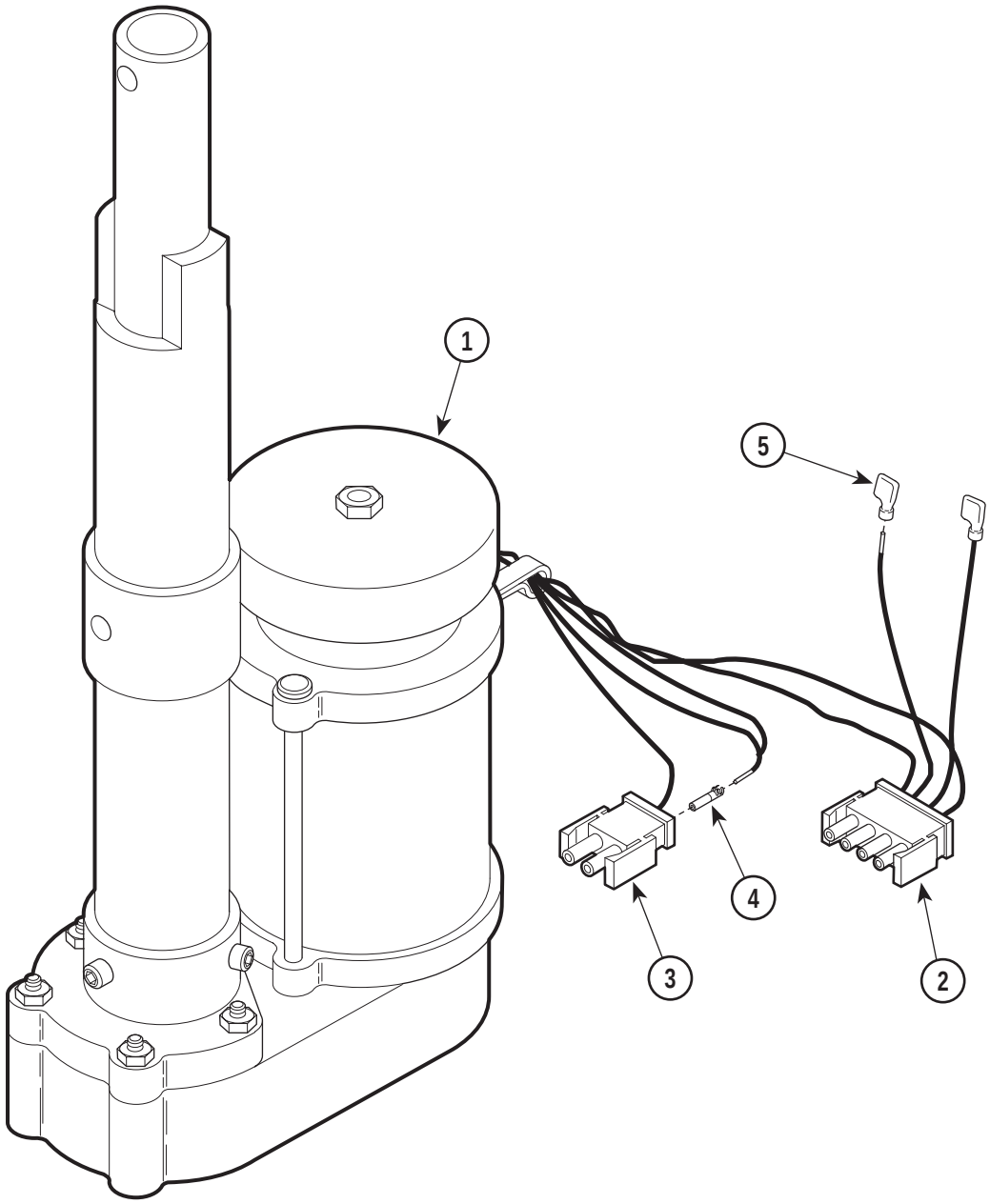
Base Actuator Assembly



MA280100

Item	Part No.	Description	Qty.
1	002-0497-00	Base Actuator Assembly - Domestic (Includes Items 2 thru 5)	1
	002-0497-01	Base Actuator Assembly - Export (Includes Items 2 thru 5)	1
2	• 015-0590-03	• Connector (4 Circuit)	1
3	• 015-0590-01	• Connector (2 Circuit)	1
4	• 015-0396-01	• Socket Terminal	6
5	• 015-0210-01	• Flag Terminal	4

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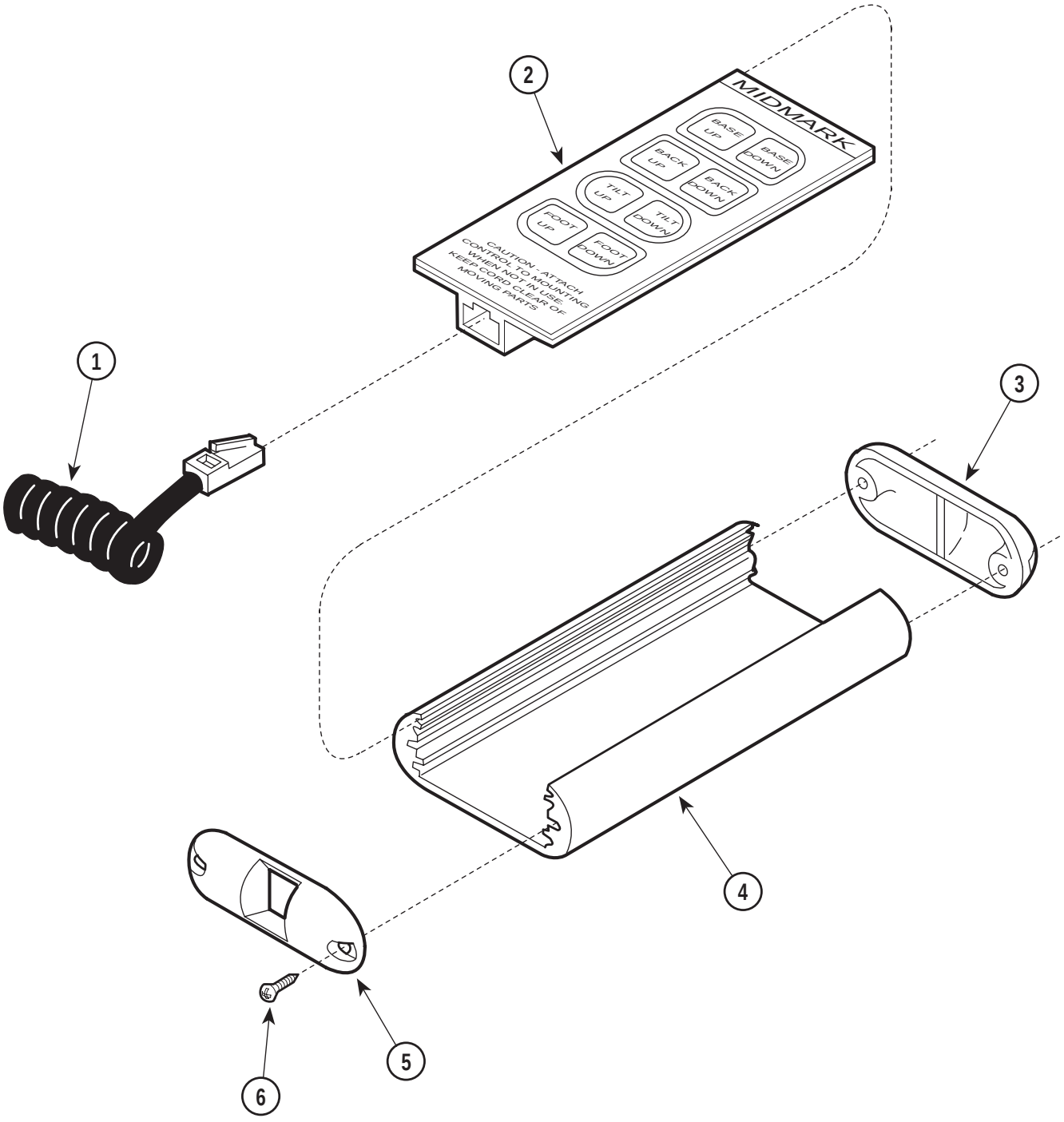
Hand Control Assembly



MA278600

Item	Part No.	Description	Qty.	Item	Part No.	Description	Qty.
	002-0499-00	Hand Control Assembly (Includes Items 1 thru 6)	1	3	• 053-0412-00	• Top End Cap	1
				4	• 021-0028-00	• Hand Control Tube	1
1	• 015-0839-00	• Modular Coil Cord	1	5	• 053-0526-00	• Bottom End Cap	1
2	• 015-0995-00	• Switch Panel	1	6	• 040-0006-08	• Screw	4

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FAX ORDERING FORM

(SERVICE PARTS ONLY)

NOTES:

- **ALL BLOCKED AREAS MUST BE COMPLETED.**
- **USE FOR NON-WARRANTY FAX ORDERS ONLY. WARRANTY ORDERS MUST BE TELEPHONED IN (1-800-MIDMARK).**

ATTENTION: SERVICE DEPARTMENT FAX#: 877-249-1793

ACCT #: _____ **P.O. #:** _____ **DATE:** _____

NAME: _____ **SHIP TO:** _____

ADDRESS: _____

CITY, ST.: _____

CONTACT: _____

PHONE: _____

☐ **NON-EMERGENCY ORDER - TO SHIP WITHIN 72 HOURS IF PART(S) IN STOCK.**

☐ **EMERGENCY ORDER - TO SHIP WITHIN 24 HOURS IF PART(S) IN STOCK (IF ORDER IS RECEIVED BEFORE 1:30 P.M. E.S.T).**

SEND NOTIFICATION IF PARTS ARE NOT AVAILABLE TO SHIP WITHIN 24 HOURS VIA E-MAIL OR FAX TO: _____

METHOD OF SHIPMENT **OTHER** _____

UPS	FED EX
☐ NEXT DAY A.M.	☐ NEXT DAY A.M.
☐ NEXT DAY P.M.	☐ NEXT DAY P.M.
☐ 2ND DAY	☐ 2ND DAY
☐ GROUND	☐ ECONOMY

QTY.	PART #	DESCRIPTION (SPECIFY COLOR OF ITEM IF APPLICABLE)	COLOR CODE	PRICE/PER

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Midmark Corporation
60 Vista Drive
P.O. Box 286
Versailles, Ohio 45380-0286
937-526-3662
Fax 937-526-5542
midmark.com

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